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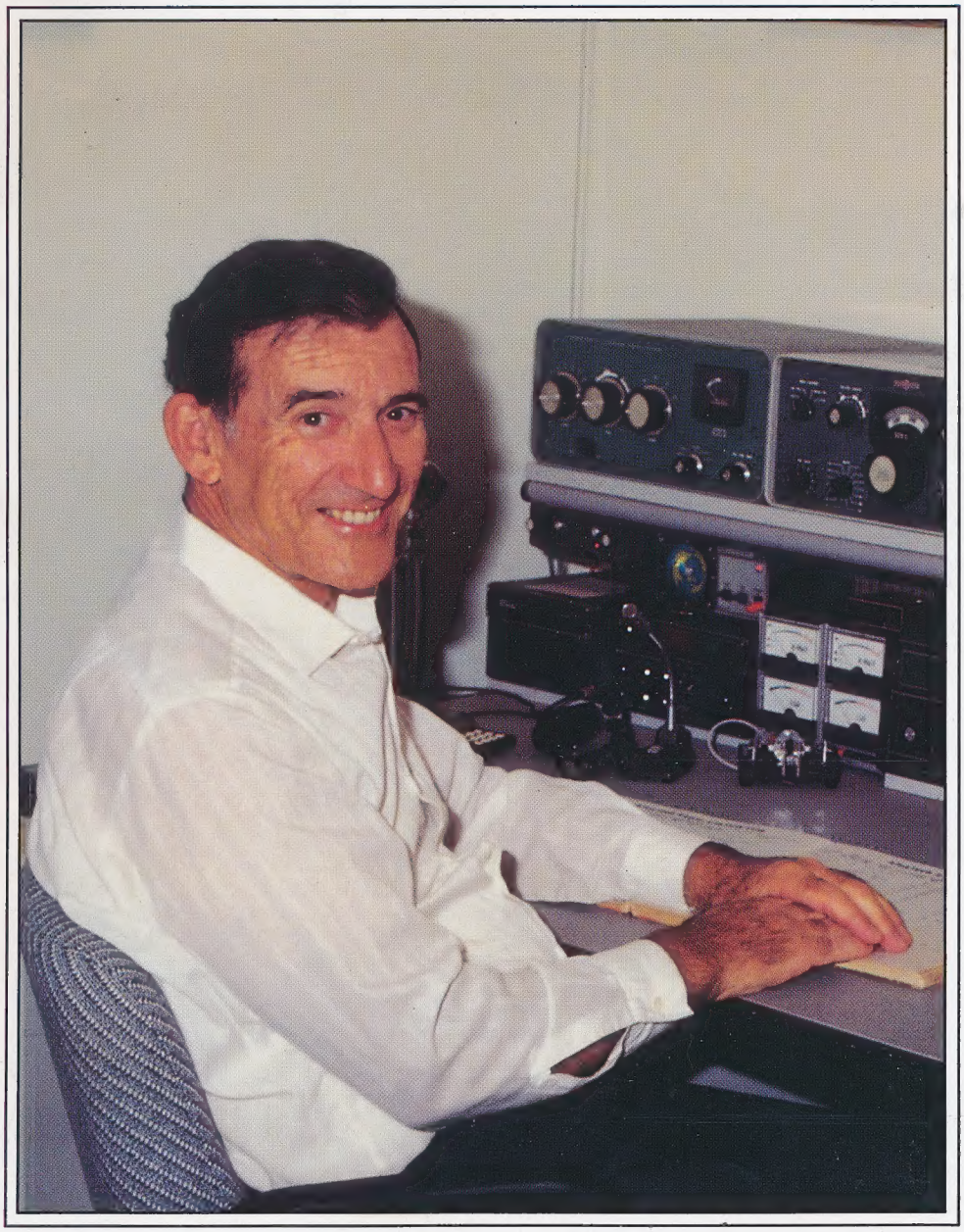

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- FT-840 Review
- Getting a Vertical Antenna to Go — Part 3
- WIA 58th Federal Convention
- Radio in Japanese Midget Subs

and lots more

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Cover

Well known DXer, Neil Penfold VK6NE, new Federal President of the WIA.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service

Member of the International Amateur Radio Union

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When someone utters the words "amateur radio", what do they conjure up in your mind?

Building things and making them work?

An outlet for your competitive spirit in contests?

Endless opportunities to make new friends around the world?

Digital communication and computers?

Or just chatting with local friends on two metres?

Amateur radio's many facets are the hobby's greatest attraction. However, let's not dwell too heavily with your past to provide the material for submissions we'll undoubtedly have to make to the authorities now and in the future. Look about you and see how the world has changed.

How many of the 300-odd DX countries can you call on the telephone from your home?

"Where's this QSP heading?" you may be asking.

To the future!

New regulations appear to be just around the corner. The SMA enquiry into the Apparatus Licensing System is rolling along. Moves are afoot to follow NZART's lead in participating in the CEPT system of licensing in Europe. Alignment of the 7 MHz band is an agenda item at the next IARU Region III conference. EMC and standards are appearing more and more frequently in various publications. Even the local paper carries the occasional EMC snippet.

These are the signposts to the future you cannot afford to ignore.

And there is yet another. This one carries the question, "When will you help those few willing workers in the arena of WIA activities?"

As with many organisations today, the WIA's membership is declining for all the reasons we've heard and discussed over and over again. (Reasons or excuses?)

Whichever, the signpost message is clear. It's time to reverse the trend.

Do YOU want to help?

Write to *Over to You* and air your ideas on **HOW WE WILL SURVIVE IN THE FUTURE.**

Neil Penfold VK6NE, Federal President

ar

Editor's Comment

Our Tangled Structure

Elsewhere in this issue you will see (and perhaps read!) an account in my words of the recent Federal Convention of the WIA. From conversations I have had with several amateurs over the last few weeks it seems that many are unsure of exactly how the WIA is structured. Particularly,

they seem confused by our combined State and Federal administrative system. Even though it has all been said before in various ways, I thought it might be useful to try to outline it again.

Firstly, don't assume, because Australia has eight State and Territory governments plus a Federal Government based in Canberra, that the seven WIA Divisions and the Federal Body have a similar relationship! They do not! Apart from not being governments, there is one basic difference. In the political scene, the laws of the Federal (Commonwealth) Government prevail over those of the States, if and when differences exist between them. But the WIA Federal Body is owned by the State Divisions and has no individual members of its own. Its members are the seven Divisions.

Thus the Federal Body (NOT "Division") is a creature of the Divisions, controlled by the Divisions operating collectively, and having no separate powers of its own beyond those which the Divisions agree to give to it. Such agreement between Divisions is proposed, debated and formalised at the Federal Convention each year, as well as at quarterly Federal Council meetings. The Federal Council consists of a delegate from each Division (not surprisingly called the "Federal Councillor") plus alternate councillors and observers if desired; but each Division has only one vote.

The purpose of the Federal Body is to do for the WIA as a whole those things which are best done on a national basis. From time to time there are changes made in the scope of the Federal activities, agreed upon at a Convention, but generally it falls somewhere about midway between the two extremes of Divisions only and no Federal Body, or Federal only with no Divisions.

Now to something completely different! Keen-eyed readers will have noticed there were two different shades of paper in the May issue, and again this month. This is due to an upgrade in quality of the paper by the supplier at no extra cost to us. Sometimes you really can get something for nothing!

Bill Rice VK3ABP
Editor
ar

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers			Weekly News Broadcasts		1994 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer	Rob Apathy Len Jones Don Hume	VK1KRA VK1NLJ VK1DH	3.570 MHz LSB, 146.950 MHz FM, 438.525 MHz FM each Monday evening (except the fourth Monday) commencing at 8.00 pm. Repeated on Wednesday evening at 8.00 pm on 146.950 MHz FM.	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124) Phone (02) 689 2417 Fax (02) 633 1525	President Secretary/ Treasurer (Office hours	Terry Ryeland Roger Harrison Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2ZRH	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24,950, 28.320, 52.120, 52,525, 144.150, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours	Jim Linton Barry Wilton Rob Hailey Tue & Thur 0830-1530	VK3PC VK3XV VK3XLZ	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President Secretary Treasurer	Ross Marren Lance Bickford David Travis	VK4AMJ VK4ZAZ VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer	Bob Allan Maurie Hooper Bill Wardrop	VK5BJA VK5EA VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 388 3888	President Secretary Treasurer	Cliff Bastin Ray Spargo Bruce Hedland-Thomas	VK6LZ VK6RR VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015 Phone (002) 43 8435	President Secretary Treasurer	Andrew Dixon Ted Beard Peter King	VK7GL VK7EB VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) (G) (S) (X)	$69.00 $55.65 $40.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Equipment Review

Yaesu FT-840 All Mode HF Transceiver

*Reviewed by Ron Fisher VK3OM**

The Yaesu FT-840 HF transceiver with MH-1b8 microphone.

The latest low priced entry to the HF amateur radio market is the Yaesu FT-840. At this time I am not sure if it is intended to replace the now ageing FT-747GX or whether Yaesu will be running two low priced transceivers side by side.

Whatever, we will be comparing these two transceivers as they do share a lot in common. The FT-747 appeared on the market in early 1988 and certainly set new standards of simplicity in amateur HF transceivers. Perhaps in some ways the simplicity was over done and maybe it didn't enjoy the popularity it should have. Certainly its low price was (and still is) a very good point in its favour as was the fact that three filters, AM, CW and SSB were included in the price. However, the tuning ergonomics were perhaps just a bit too odd to make the transceiver a runaway favourite.

The "click stop" main tuning was a real pain which made band scan tuning a slow and laborious job. Having said that, I used one on an expedition to the Gulf of Carpenteria and the Northern Territory two years ago and found its performance as a mobile rig to be first class. Use was mainly confined to several fixed frequencies and the excellent memory system took care of this.

So, what have Yaesu produced to bring the FT-747 up to date? The answer is the FT-840, an up-to-date transceiver with excellent tuning characteristics and 100 multi purpose memories.

Enter the FT-840

The FT-840 is a compact, but not miniature sized, transceiver. It, in fact, matches the size of many of its competitors and is exactly the same size as the old FT-747. The plastic cabinet of the 747 has been replaced with a normal metal type. With this, the weight is also up by 1.2 kg to 4.5 kg, which is still light in comparison with many mobile/portable transceivers.

The full general coverage receiver covers from 100 kHz to 30 MHz, while the transmitter operates on all amateur bands from 160 to 10 metres. Operation is possible on SSB, CW, AM and FM with FM available as an option and wideband AM reception also available as an option. A narrow CW filter is also available if required.

The transmitter has a nominal 100 watt output and a speech processor is included to give the audio a worthwhile boost. The frequency synthesiser now uses two direct digital units driven from a single master oscillator. Hopefully this should overcome the calibration problems of the FT-747 which needed accurate setting of both the master oscillator and the carrier oscillators to ensure spot on frequency read out.

The click stop tuning of the 747 has gone and has been replaced with a very smooth running, weighted control and memory selection is now via two small up/down buttons at the top right hand side of the front panel. RIT now has a separate control at the bottom right of the front panel which replaces the very confusing RIT of the 747.

The speaker on the FT-840 is mounted under the top cover in place of the front panel mounted speaker of the 747. Finally, the DC connecter on the rear panel has been changed to a standard six pin plastic type which makes it compatible with most past, and all current model, HF mobile transceivers.

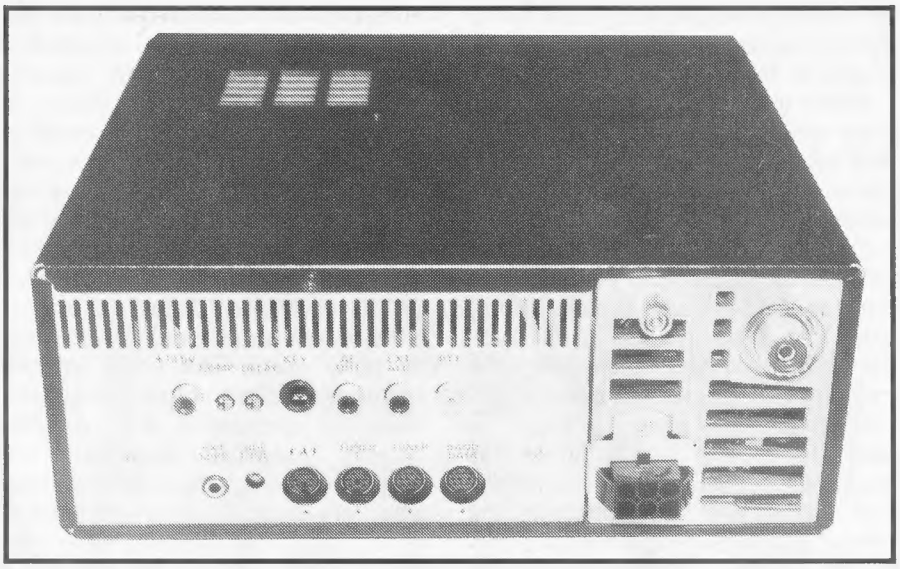
On the Air

Putting the 840 on the air was very easy. All of my power supplies are already fitted with six pin DC connectors for my existing equipment so no rewiring was needed. As usual, the microphone supplied with the rig

is the MH-1b8 and I will have more to say about this later.

First thing noted on initial switch-on was the very clear LCD readout which now displays frequency to 10 Hz. The main tuning control is nicely weighted and very smooth to use, a distinct difference from the FT-747. Modes are selected with four buttons to the left of the tuning control. Each of these has at least two positions selected in sequence. The SSB button selects either USB or LSB while the CW button selects either wide or narrow selectivity providing, of course, the optional narrow CW filter is installed.

The same applies to the AM button but the other way around. The button selects either normal or narrow selectivity but, unless the normal AM filter is installed, you only get narrow (2.2 kHz) bandwidth. The FM button selects the FM mode provided that the optional FM board is installed. If it is you can then select positive or negative off-set for repeater operation with sub-audible tone or simplex operation. The fifth and bottom button is for locking the tuning control. It does not lock mode selection or the RIT. Yaesu have paid special attention to the tuning system of the FT-840. Let's run through the facilities that are offered. The standard tuning rate is in 10 Hz steps but four different tuning knob rates can be selected. A small slide switch, accessible through a hole in the bottom plate, allows selection of either a 5 or 10 kHz per knob revolution rate. Then, with the "fast" button selected, the tuning rate goes up to 100 Hz steps which gives either 50 kHz or 100 kHz per knob revolution depending on the position



Rear panel of the FT-840.

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of the above slide switch. I must admit that I preferred the 5 kHz rate, but the choice is there for you to choose.

When it comes to band selection, there are again several very flexible methods. Either amateur band or general coverage switching is available via the "Band" up/down buttons. With "Ham" selected, the transceiver steps from one amateur band to the next with the previously used frequency coming up on each band. With "Gen" selected, the transceiver steps up and down in 100 kHz segments but, if "Fast" is selected at the same time, this increases to 1 MHz segments. I noted that with "Fast" selected in the "Ham" mode nothing extra happens, the rig still selects amateur bands in normal sequence.

Overall, the tuning and band change system used in the FT-840 is amongst the best that I have ever used in a basic, low cost transceiver.

The FT-840 has a total of one hundred memory channels. The first ninety can store frequency, mode, wide/narrow IF selection for CW and AM modes, clarifier on/off and split frequency status. The ten "P" memories store upper and lower frequency limits for programmed band scanning. In addition, they also store all of the information that can be stored into memories one to ninety.

Both the metering and the meter itself have been greatly improved. The meter is at least 50% larger than the one in the FT-747 and is very clearly calibrated and brightly illuminated. On transmit, both power output and ALC can be monitored in sequence via the meter switch at the top left of the front panel. Unfortunately, there is no SWR reading which would be very handy for mobile and portable use.

Tuning around, I was impressed with the very smooth tuning and the quick and easy band changing system. The RIT (there is no XIT) has a wide or narrow range of +/− 1.25 or 2.5 kHz which are selectable with one of the power-up functions. I found the +/− 1.25 kHz to be about right. With RIT selected an indicator shows on the main display and the main frequency readout shifts, but there is no separate RIT frequency readout.

As seems to be the fashion, several functions can be preset with the power-up function. These include CW mode BFO offset, scan resume mode, either 5 second delay or squelch operation, and normal or reverse sideband for CW reception. Unfortunately, this latter function can only be accessed by switching the transceiver power off first. Other power-up functions are covered clearly in the instruction manual.

Received audio quality was rated as fairly good, The small internal speaker lacked high frequency response compared with a good quality external speaker. AM reception through the side-band filter was very poor. If you want a bit of broadcast entertainment when the bands are dead then the optional 6 kHz bandwidth filter would be essential. The CW enthusiast would equally need the 500 Hz filter.

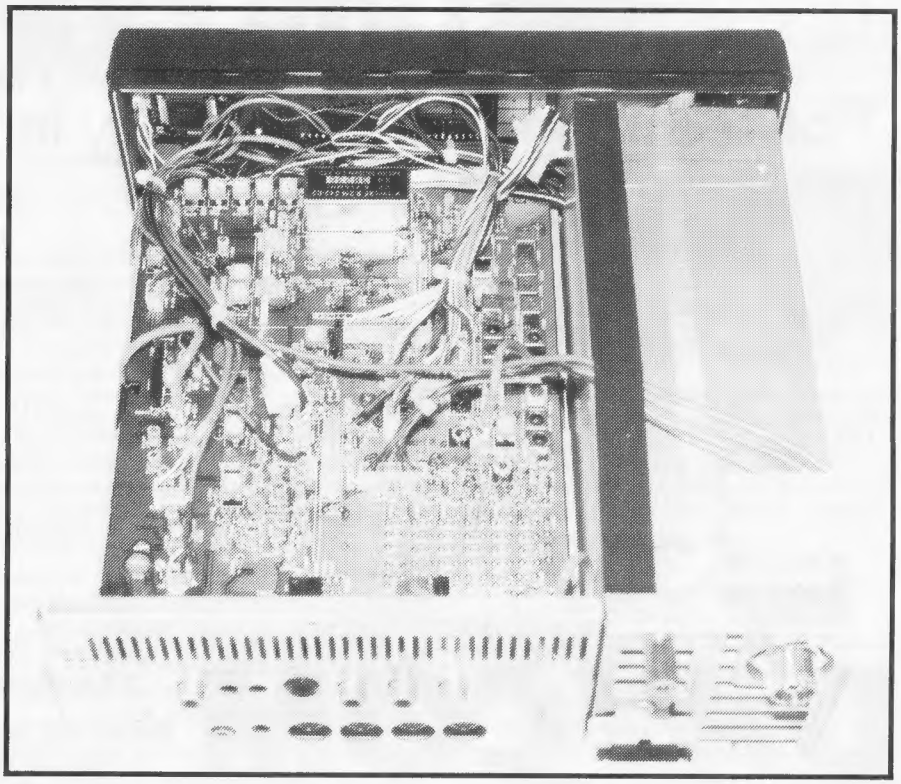
Transmitted audio quality was reported as very good with the processor adding a definite bite to the signal. The compression level is adjustable via a recessed control on the rear panel and you will need to set this up with a critical listener for best overall results. I found that the compression was not excessive with the control set about half way.

No VOX is included in the FT-840 but I guess most operators will not miss this. It's most unusual to hear amateurs using VOX these days. Reports indicated that the signal was very clean so long as the ALC reading on the meter was not exceeded.

The CW operator should be very happy with the FT-840 on transmit. CW uses a semi break-in system with the return to receive delay being adjustable via a rear panel recessed control. The 840 does not have a full break in (QSK) system, however, you can get close to it with minimum delay selected. The CW transmitted signal was reported as being very clean. The power output can be adjusted down to QRP level at about 4 watts. Several pages of the manual are devoted to computer control of the transceiver. I was unable to check this facility but there is plenty of information if you wish to try this facility.

The Yaesu MH-1b8 microphone

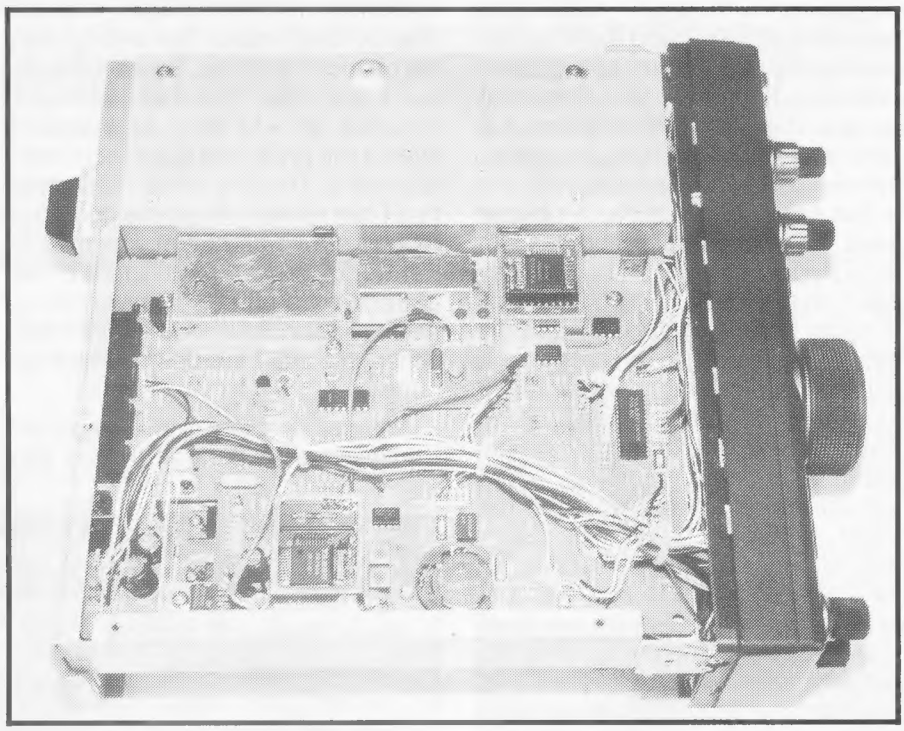
Microphones supplied with amateur transceivers these days are not all the same so I feel that a few words are in order to describe this one. It is supplied with all Yaesu HF



The FT-840 with the top cover removed.

transceivers and has, in fact, been around for a few years. The manual shows a response curve which shows the effect of the "tone" switch on the back. Tests showed that most contacts preferred the switch in the No 1 position that is the maximum bass response.

This microphone is larger and slightly heavier than other hand microphones. The PTT switch tends to be a bit "clunky" in its action. The button actuates a slide switch where others use a micro switch for smoother action. After banging an MH-1b8 around the Northern Territory a couple of years ago, I found that the metal grill became loose and actually fell out. Also, being metal, it became scratched very easily with the paint flaking off. Also, for some strange reason, the MH-1b8 is not usable on Yaesu VHF transceivers. The microphone will work but the UP/DWN wiring is not compatible and so nothing happens. Very odd.



The FT-840 with the bottom cover removed.

On Test

I carried out the usual series of tests on the FT-840 starting with transmitter power output and current drain for both transmit and receive. Power output is variable on all modes via the "RF PWR" control. A Yaesu FP-707 power supply was used for all tests.

Power output in CW mode

Band	*Power Out*
160	110 watts
80	110 watts
40	106 watts
30	105 watts
20	100 watts
18	100 watts
15	100 watts
13	99 watts
10	95 watts

Power on all modes can be reduced to four watts on all bands. In the AM mode power output is about 25 watts maximum and can be reduced to about 2.5 watts. To achieve 100% modulation this output is spot on. No tests were carried out in the AM mode apart from the above power output checks. PEP output in the SSB mode was essentially the same as the CW power in the above tests. The power calibration on the meter was very close to the actual measured output.

Current drain on receive was 1.3 amps with low audio output peaking to 1.5 amps at maximum audio output. Current drain on transmit with maximum CW output on 20 metres was 19 amps and, with minimum power out (4 watts), it was 5 amps. On SSB the peak current drain would be about the same as above but the average drain would probably be about 2/3rds of the peak current.

Yaesu specify the transmitter IMD as -25 dB for 100 watts PEP output at 14.2 MHz. This appears to be a very realistic figure and our tests agreed with this. It's interesting to note that Yaesu include transmit IMD in their specification where other manufacturers do not. Thanks Yaesu for your honesty.

Receiver Tests

Firstly the "S" meter calibration was measured.

"S" Reading	Voltage Input.
1	1.4 μV
2	1.8 μV
3	2.5 μV
4	3.4 μV
5	4.8 μV
6	7.0 μV
7	10.0 μV
8	15.0 μV
9	25.0 μV
+20 dB	88.0 μV
+40 dB	1000 μV
+60 dB	.03 v

There is no preamp switching on the FT-840 but the attenuator provides 12 dB attenuation. Measurement indicated this to be spot-on with the specification. The signal input to produce "S" 9 on each band was checked.

1.8 MHz 16 μV	18.1 MHz 19 μV
3.6 MHz 17 μV	21.2 MHz 25 μV
7.1 MHz 17 μV	24.5 MHz 17 μV
10.1 MHz 23 μV	28.5 MHz 17 μV
14.2 MHz 25 μV	

Yaesu specify receiver sensitivity for SSB and CW in the range of 1.8 to 30 MHz as 0.25 μV for 10 dB S/N. My measurements indicated a slight improvement on this with 12 dB S/N. Sensitivity was not checked below 1.8 MHz but it appeared to be quite adequate. No measurements were made in the FM mode as the optional FM unit was not provided in our review transceiver.

The only IF filter included in the FT-840 was the standard SSB filter with a -6dB band width of 2.2 kHz and a -60dB width of 5 kHz. It appears that the filter is similar to the one used in the older FT-747 as the specification is the same. Again our tests confirmed Yaesu's figures.

Receiver audio power output was measured at both 4 and 8 ohms load impedance. Maximum power at 8 ohms was 1.2 watts and 1.8 watts at 4 ohms. The specification shows 1.5 watts at 4 ohms for 10% distortion. My measurements came up with 6% for the same figure, a slightly better result. For mobile operation this is a bit on the low side and, in fact, slightly less than the FT-747 which I found to be badly lacking audio output in my camper van a couple of years ago. If you use an external speaker, make sure it is 4 ohms impedance to produce the maximum acoustic output.

Another thing noted was that the action of the IF shift was rather unbalanced. No doubt there is an internal adjustment to put this right and the problem should be fixed under warranty. The outcome of this was that interference rejection was better on one sideband compared to the other.

Instruction Manual

There is no doubt that Yaesu manuals are the best produced in the industry. The quality of printing and presentation is top class. However, that's not to say that the contents could not be better. Up until a few years ago Yaesu manuals had some technical content. Unfortunately, this has all but disappeared. From an operating instruction point of view though, I give it 10 out of 10.

A full circuit diagram is provided, but there are no photos showing adjustment points. Clear diagrams show how to install the optional CW and AM filters which plug in and do not require soldering or removal of circuit boards. Another new innovation described in the manual is the replacement of the lithium battery. In the early years this was definitely a "return to the service department job". No longer so. But tell me, when did you last hear of a lithium battery that needed replacing? They seem to last a very long time.

Conclusions

No doubt about it, Yaesu have put a lot of thought into the design of the FT-840. Maybe they are even reading a few equipment reviews and are taking note of what is said. Would I change anything on the 840 if I had the chance? Well, no, I don't think so, but I feel that Yaesu should have included an AM filter as standard even if the price had to be increased to cover it. The only other transceiver that I can remember where good AM reception was an option was the old Kenwood TS-430. From there on all general coverage transceivers have had reasonable AM reception although some have been better than others.

Another problem with Yaesu HF transceivers in general is that you cannot buy a matching Yaesu power supply. I have seen photos of the FP-800 which matches both the 840 and 890 transceivers. It looks most attractive and seems to be available everywhere but here in Australia. I am sure this is costing Yaesu sales here. If the others can do it, why not Yaesu?

Retail price of the FT-840 is $1895 and overall this represents excellent value. Our review FT-840 was supplied to us by Dick Smith Electronics to whom all enquiries should be directed.

*24 Sugarloaf Road, Beaconsfield Upper, VIC 3808

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QSP News

New Federal Office Postal Address

After fifteen years, PO Box 300 Caulfield South is no longer the postal address for mail for the Federal Office and *Amateur Radio* magazine. A new post office has opened only a few doors along from the Federal Office and, as from 3 May 1994, the new postal address for the Federal Office is:
PO Box 2175
Caulfield Junction VIC 3161

Stop Press

Last year in June, adventurer Dick Smith and balloonist John Wallington successfully crossed the Australian continent from west to east in a Roziere combined helium-hot air balloon.

This year, following their example, Steven Griffin, a Brisbane balloonist, will try to do the same, but with a difference. Steven will attempt the balloon crossing **alone** from west to east. He will use the balloon and gondola of his predecessors loaned to him by Dick Smith. The flight will take off from Carnarvon, WA in the early days of June 1994 depending on favourable wind conditions.

The gondola will have most of the equipment used last year, but due to budgetary restrictions, Steven's attempt will not be a very elaborate one. The shortwave radio is still in the gondola, but Steven's qualifications enabled him to obtain only a combined radio amateur licence with privileges only on the 80, 15 and 10 metre amateur bands.

There will not be an organised amateur radio net to follow his flight due to poor propagation and the limitations of band use imposed by the licence. The callsign to be used will be VK4JAW/aeronautical mobile. Steven will use amateur radio only in emergency or when his commercial communication equipment proves inadequate.

All radio amateurs are kindly asked to keep a listening watch during the month of June on 3605 kHz, 21155 kHz and 28620 kHz, and give assistance if required. We all wish Steven good luck.

Stephen Pall VK2PS

Slow Morse Beacon

The North East Radio Club in Adelaide has produced a Morse Code Training Beacon for two metres on 144.975 MHz signing VK5RCW. It has a continuous output of 10 watts. It takes 80 minutes to cycle from 5 WPM to 12 WPM in 10 minute steps, with 8 pm local CST one of the starting points at 5 WPM. This allows you to organise your time for the speed you need. Signal reports would be appreciated to PO Box 36, Modbury North SA 5092.

WIA 58th Annual Federal Convention

Bill Rice VK3ABP reports on the recent AGM of the WIA

The 58th Federal Convention of the WIA was held at the Windsor Motor Inn, Wellington St, Windsor, Victoria over the weekend of 30 April to 1 May 1994.

List of People Attending

Kevin Olds VK1OK	Retiring Federal President
Richard Jenkins VK1RJ	ACT Federal Councillor
Gavan Berger VK1EB	ACT Alternate FC
Roger Harrison VK2ZRH	NSW Federal Councillor
Terry Ryeland VK2UX	NSW Alternate FC
John Robinson VK2XY	NSW Observer
Alan Noble VK3BBM	Vic Federal Councillor
Bill Trigg VK3JTW	Vic Alternate FC
Peter Maclellan VK3BWD	Vic Alternate FC
Barry Wilton VK3XV	Vic Observer
Ross Marren VK4AMJ	Qld Federal Councillor
Rodger Bingham VK4HD	Qld Alternate FC
Bill Wardrop VK5AWM	SA Federal Councillor
Ian Watson VK5KIA	SA Alternate FC
Neil Penfold VK6NE	WA Federal Councillor
Bruce Hedland-Thomas VK6OO	WA Alternate FC
Jim Forsyth VK7FJ	Tas Federal Councillor
Bruce Thorne	Federal Secretary
Donna Reilly	Federal Office Manager
Brenda Edmonds VK3KT	Minute Secretary
David Wardlaw VK3ADW	Director, IARU Region 3
David Andrews ZL2SX	NZ observer
Alan Wallace ZL1AMW	NZ observer
Bill Rice VK3ABP	Editor *Amateur Radio*

VK1 Federal Councillor — Richard Jenkins VK1RJ.

VK2 Federal Councillor — Roger Harrison VK2ZRH.

Others were also present from time to time. Federal co-ordinators and other guests attended the Saturday night dinner, as well as IARU vice president Michael Owen VK3KI, now returned to VK after six years in the UK.

The Convention was opened at 0910 by the retiring Federal President, Kevin Olds VK1OK. He began by welcoming the delegates from New Zealand, David Andrews ZL2SX and Alan Wallace ZL1AMW. VK4 then moved that standing orders be suspended to discuss the 8th item on the agenda, described as "the VK3 motion" (from the previous quarterly meeting). This was that the role of the Federal Office should be discussed, particularly the purposes for which the Federal body has been constituted. After some discussion it was agreed that the item be set aside to permit drafting a more formal motion.

Discussion then followed on the topic of members transferring membership from one Division to another, without changing their State of residence. It was claimed this had been "encouraged by the Federal Office", but the claim was denied. VK3ADW said he had "heard it all before" during his 40 years of WIA activity! This motion also was set aside to permit re-drafting.

Too Many Meetings?

Another motion by VK3 was to reduce the number of Federal Council meetings (at present four per annum, the Convention being one of the four). This would save expense, particularly if the Federal Office was provided with adequate guidelines between meetings but on the other hand VK5 pointed out that the present meeting business always seems to occupy all the available time! Again, the motion was set aside.

VK3 Federal Councillor — Alan Noble VK3BBM.

VK4 Federal Councillor — Ross Marren VK4AMJ.

The last VK3 motion proposed that all Divisional Councils should have input to all Federal discussions, with six weeks notice of proposals to permit local discussion. It was expected this could increase telephone bills and office work. This motion was carried.

Discussion then moved to the accounts, auditors and co-ordinator's reports, many of which have been published in *Amateur Radio* (April issue pp 22-25). Some of the reports were considered non-controversial and accepted with little or no comment, but those which attracted debate were the financial reports. This led on to a long discussion about Federal Office security. Some recommendations were unacceptable to some Councillors and were set aside for further discussion on Sunday.

Hazards

An interesting point which emerged from debate on the Standards report was in regard to non-ionising

radiation and specifically RF fields from transmitting antennas, particularly cellular mobile phones. There is a possibility that these and other transmitters might be prohibited in the city of Auckland (according to ZL2SX) which of course would have serious repercussions on amateur radio. VK3ADW advised against "panic" however, as high level discussion of such radiation hazards (if any) has been continuing in Australia and NZ for some years, and no doubt even more in the USA and elsewhere overseas.

VK5 Federal Councillor Bill Wardrop VK5AWM.

New Federal President — Neil Penfold VK6NE.

The next report to provoke discussion was that on the WIA Exam Service. The method by which Divisions pay for exam materials was criticised, and the service appeared to be running at a loss for the last few months. In defence, it was claimed that seasonal factors make profit and loss figures misleading over less than a full year.

Convention Location

Federal Conventions have been held in Melbourne exclusively since 1975, but prior to that had been held in other cities too (Sydney in 1974, Brisbane 1971, Adelaide 1970, Canberra 1969, Hobart 1967, to name some years only). This was thought to be worthy of consideration again, and it was resolved that the Federal Office conduct a full cost comparison of the possibilities for future years. *(Sydney in the year 2000 would seem appropriate. VK3ABP)* During the discussion the point was firmly made by the President that all Federal meetings are open, and any individual WIA member may attend them.

Budget

As always, money matters seem to stimulate discussion, and the Budget for 1994 brought out a number of

VK7 Federal Councillor — Jim Forsyth VK7FJ.

Vice President IARU — Michael Owen VK3KI.

conflicting viewpoints. The surplus is planned to be $29,000 with accumulated reserves of $170,000 at 31 December 1994. This was thought to be too high by VK4HD, who preferred reserves of no more than about $40,000. The topic was raised again of how WIA functions should be divided between Divisions and Federal. It was claimed that in 1974 or thereabouts Federal was run by a manager and an office boy *(but there were many volunteers. Ed.)* Now it has an annual salary bill of $155,000, also has the Exam Service to run, plus many other responsibilities in a climate of costs rising and membership falling. VK3BWD thought the surplus should be applied to reducing the Federal component of subscriptions. Eventually the Federal Secretary was requested to revise the Budget figures.

RCC

David Wardlaw gave an outline of the recently established **Radiocommunications Consultative Council,** a special group set up by the Spectrum Management Agency to advise on radiocommunications generally and, in particular, the introduction of spectrum licensing. David is the WIA representative on the RCC. He said

Manager, SMA Customer Services Group — Peter Stackpole VK1RX.

Retiring Federal President — Kevin Olds VK1OK.

it was unlikely that spectrum licensing would apply to frequencies below 30 MHz, or to bands which have only one user service.

Office Bearers

The election of the President and seven Federal Councillors produced some changes to the Council. Kevin Olds vacated the chair in favour of the erstwhile Vice-President, Neil Penfold VK6NE, who thus became the first-ever WIA Federal President from Western Australia. Bruce Hedland-Thomas VK6OO as Alternate FC took over for VK6, and Ross Marren VK4AMJ replaced Rodger Bingham VK4HD as the VK4 Federal Councillor. Later in the Convention Roger Harrison VK2ZRH was elected to the position of Vice-President. The new Council began its operations by reviewing the minutes of the previous Council meeting in February, and discussing current correspondence, but adjourned at 6 pm for the Convention Dinner.

Federal Secretary — Bruce Thorne.

Federal Office Manager — Donna Reilly.

SMA Spokesman

The speaker at the Dinner was Peter Stackpole VK1RX, who is a manager with the Spectrum Management Agency. He spoke at length and answered many questions about apparatus licensing, new regulations (not likely till the end of 1994), interference, class licensing, EMC standards and spectrum licensing. Among the points he made were that the present period is one of many rapid changes to administration, and that amateur radio in particular, from a spectrum licensing viewpoint, was in "a very hard basket"! An account of his address, in abbreviated form, was included as an insert in May *Amateur Radio.*

The new Federal President Neil Penfold VK6NE in the chair at the Convention, flanked by Federal Office management, Bruce Thorne and Donna Reilly.

Back to Work

Convention business recommenced on Sunday with a continuation of discussion on the role of the Federal Office. Seven headings were enumerated as describing the scope of the Federal body. These were:

1. National and international representation.
2. Publishing Amateur Radio and the Callbook; editorial policy to be defined.
3. Centralised membership records.
4. Co-ordination of advisory committees.
5. Provision of examination materials.
6 Federal Office administration and management.
7. Membership Recruitment.

Amateur Radio magazine Editor — Bill Rice VK3ABP.

Minute Secretary/ Education Co-ordinator — Brenda Edmonds VK3KT.

There should also be no extension of trading activities (unless authorised by Council).

It was quickly realised that full debate and agreement was not to be achieved in the time available, and the office must continue to function in the meantime, so a clause "to authorise all current procedures until otherwise directed" was added. Also, on the request of VK2ZRH, the word "centralised" was deleted from clause 3.

The next item was the WIA representation at the IARU Region 3 Convention to be held in Singapore from 4 to 9 September 1994.

Nominations were called, but there was some disagreement as to whether the delegation should be two, three, or four people. After considerable discussion it was agreed that four would be necessary and that these should be Kevin Olds VK1OK (IARU representative), Neil Penfold VK6NE (President), Gavan Berger VK1EB (SMA liaison) and John Aarsse VK4QA. Reserves (should a need arise) would be selected from VK2ZRH, VK2UX and VK3KT. Wally Watkins VK4DO will be passing through Singapore at the same time en-route to an ARDF contest and may also be able to assist.

Correspondence

Approximately 30 items of correspondence were discussed during the rest of the morning. Most were of limited general interest, but one of the more important points was that Federal Office correspondence to members on Divisional matters should not be direct, but via the member's Division. In the afternoon there was extensive debate on the security of the Federal Office. John Robinson VK2XY described (from his own personal professional knowledge) a number of modern security systems to ensure not only the safety of valuable or sensitive records, but also to control out-of-hours access. Measures are already in place to provide some of these benefits, but more are to be installed.

Other Items

Discussion moved on to the WIA/SMA "memorandum of understanding" under which the Exam system operates. Some details were seen to need amendment in the light of operational experience.

NZART Observer — David Andrew ZL2SX.

NZART Observer — Alan Wallace ZL1AMW.

The Federal Memorandum of Association has been the subject of continuing draft changes for some time, and will need more amendments before final legal approval is sought.

A sub-committee preliminary report on publication options for *Amateur Radio* has been published, but further investigation has been delayed. There was some discussion about proposed special publications.

After one or two final and minor items were mentioned, Neil VK6NE declared the 58th Federal Convention to be closed at just after 4 pm.

(All photographs taken by Vicki Griffin VK3BNK.) **ar**

Getting a Multiband HF Vertical To Go! (Part III)

"Doc" Wescombe-Down VK4CMY/VK5HP with more useful information about vertical antennas.*

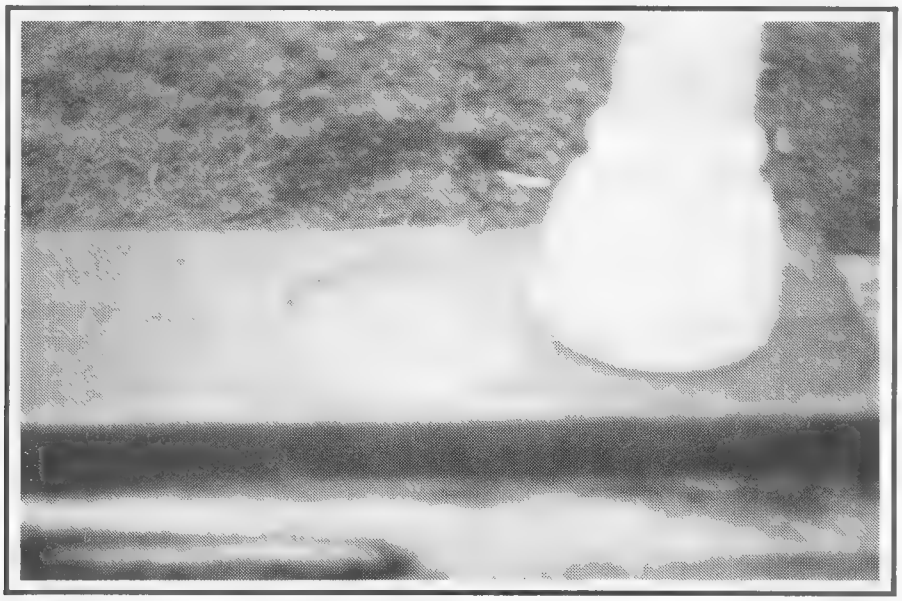


Photo 1 An ironbark board routed to accept the large ceramic insulator.

A 5/8 wave vertical antenna is probably the best all round DX transmitting antenna apart from a Yagi-Uda or quad array. This type of vertical is often overlooked for the lower HF bands simply because of the height, but perhaps the subject is worth reconsidering.

For 7.1 MHz operation, such a radiator would be 25.1 metres (83.5 feet) high. For 3.65 MHz, this same radiator will be 116 degrees of electrical length and will happily operate at that lower frequency with an SWR of less than 2:1. Let us reflect on the 5/8 wave antenna for the upper HF bands, 14, 21 and 28 MHz.

This 5/8 wave antenna can give your signal about a 3 dB power gain over a ground plane (1/4 wave vertical). For 14 MHz we require 12.65 metres (41.5 feet); for 21 MHz 8.47 metres (27.75 feet); and for 28 MHz 6.5 metres (21.25 feet). These radiator lengths may be more appealing to some operators and their "landladies"!

Yet there exists another option which is perhaps underrated, if not overlooked. The HALF WAVE vertical radiator. I run two such installations. One for 40 metres and the other for 20 metres. Being on alternative power, I run from 5 to 30 watts of RF from a car battery source, but as anyone who has worked me will assure you, these aerials REALLY get out!

I believe the two main reasons are LOCATION — my QTH is atop a 915 metre hill with no obstructions within 65 metres of the feed point; and RADIAL NETWORK — 120 halfwave radials for 80, 40 and 20 metres. Yes it means a lot of wire and a lot of space but can raise the RF power by up to 8 dB and that means a "lot of signal".

Interestingly, most theoretical references state that radials are inoperative for halfwave vertical radiators. But, with respect, I do question this theory. To me, return current paths are required to complete the circuit and that is a function of the radials. I do believe that the amount/lengths of wire used here contribute to the ground reflection within half a wavelength of the antenna feedpoint since the longest radials extend some 40 metres in each direction 120 times, 20 metres in each direction 120 times and 10 metres in each direction 120 times!

This is the setup simply because both the wire and the real estate were available and everything I had read about vertical antennas indicated that this would be an optimum installation. All of the radials are tent-pegged on top of the ground.

120 halfwave radials . . . can raise the RF power by up to 8 dB

However, both halfwave verticals worked really well with only eight halfwave radials for each band and that makes the whole thing more feasible for many. Remember, radials can be run around the base of your boundary fences, in gutters, along rooflines, etc, etc.

Here is my proposition. Build a halfwave vertical for the band of your choice (see any dipole chart for measurements) but add eight halfwave radials to it and FIND places on your block to route them. I have even wrapped them around the perimeter of a stumped house in suburbia and secured them to the hardwood stumps with fencing staples.

Any motor winding shop should be able to help you with a few kg of wire "mistakes" to use for the purpose and, at about $5.00 per kg, the whole thing is a cheap exercise.

Antenna radiator elements can be made from guttering downpipes, alloy irrigation pipe, aluminium tubing, or even food cans soldered together end-to-end. "Lister" irrigation in our area sell new 10 metre lengths of 1.5 inch (yes, it is still sold with Imperial diameters!) alloy irrigation pipe for $40.00 minus couplings, but I've paid as little as $4.00 a length at clearing sales. Don't forget to use conductive

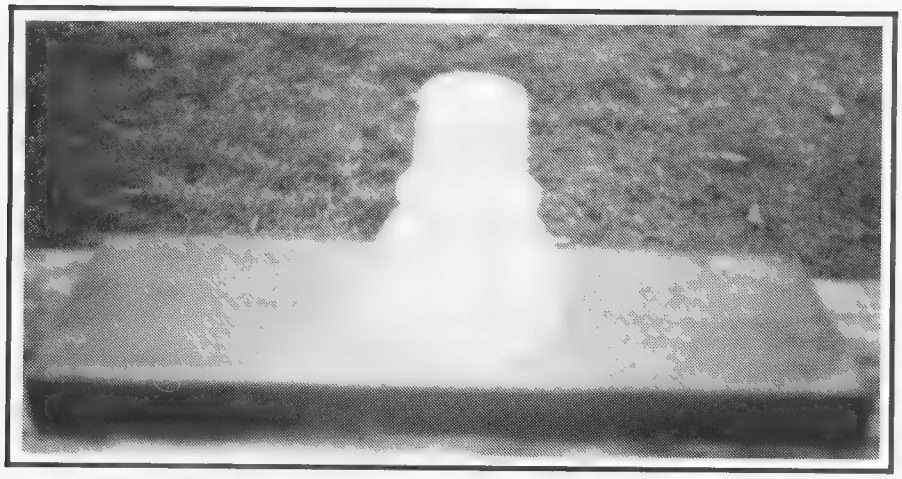


Photo 2 The vertical antenna base mount ready to take the antenna.

paste (eg Shell EMF Welder Grease) on contacting surfaces if you telescope tubing.

Some polypropylene guys and a base insulator and you are in business — halfwave business! The photos show the base insulator assembly using an ironbark board routed to accept a large ceramic insulator which is secured with either silicone sealant or epoxy glue. If any interested reader has trouble obtaining such an insulator, I have a limited number available at $7.00 each plus $5.00 postage. First in first served.

Most amateur references provide details on alternative methods of feeding such aerials but I will be pleased to share information with those who write enclosing an SASE envelope.

*via Post Office
Dalveen QLD 4374

WIA News

Ham Fair in Tokyo

The Japanese Amateur Radio League's 18th Ham Fair will be held over three days, from 19 to 21 August, this year. Site for the occasion will be the New Hall of the Tokyo International Trade centre in Harumi, Tokyo.

The fair, reputed to be the largest show of its kind according to *The JARL News,* will have a wide range of exhibits, lectures, "novelty booths" and other attractions with the main theme being "Double enjoyment in various modes."

Just as the celebrated Australian "Wyong Field Day" has its "disposals sale", the JARL Ham Fair boasts a "recycle corner", which proved very popular last year, says the JARL report.

A new attraction will be the ARDF (amateur radio direction finding) corner, no doubt in response to this booming "sport" (a combination of pedestrian foxhunt and marathon foot race — ask Australia's foremost exponent, Wally Watkins VK4DO!).

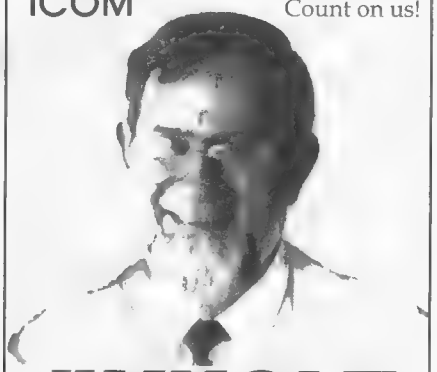
Naturally, there'll be a commemorative radio station, 8J1HAM. So, if you can't get to Tokyo in person, you might get there "in spirit" by working 8J1HAM around 19-20-21 August.

Happy Fourth to Fuji 2 Bird

As of 8 February this year, the Japanese Amateur Radio League's Fuji 2 satellite was four years old. Launched as JAs-1b in 1990, it has operated since then without mishaps, says *The JARL News* for Feb-Mar.

This month, parallel operation of both analogue and digital modes may become possible as the satellite will enter a "full daylight" period orbit, depending on its position.

ICOM Count on us!



"VK3LZ calling!"

The latest snippets from Icom.

IC-736 SHORTAGE
We have been overwhelmed by the early response to the IC-736. Consequently we have numerous back-orders which we shall endeavour to fulfil in June.
Our apologies for the delay.

IC-2340H - DUAL BAND MOBILE
Stock has now arrived.
This unit is the same style as the IC-281H.

MT GAMBIER CONVENTION
Look forward to seeing many familiar faces at Mt Gambier. If all goes to plan, we'll have the IC-820H Base Satellite Unit available for its first public showing.

"... 73"

Call me at Icom on ph: (03) 529 7582 (008) 338 915

ACN006 092 575

Did They or Did They Not?

Col Harvey VK1AU has dug out the truth about the radio equipment on the midget submarines that attacked Sydney.

When the re-built composite Japanese midget submarine was put on display at the Australian War Memorial, there was no evidence that communication equipment had ever been installed. There was no wire aerial or conventional aerial mast, no equipment rack, no cabling, no Morse key and no intercommunication gear such as headphones or microphones. There still is none.

After Pearl Harbour, the Americans had recovered a similar submarine intact. Photographs of this midget aground and before salvage, showed no sign of an aerial or mast. The British had also recovered a midget intact after the raid on Diego Suarez Bay in 1942. Enquiries about the wireless fit in these midgets remain unanswered.

But there were statements by Old Timers that Japanese wireless equipment had been seen at Garden Island after the remains of two midgets had been recovered from Sydney Harbour.

An enquiry at the Australian War Memorial revealed that *"..the radio sets and ancillary equipment were removed from the submarines at the time of salvage for analysis by the RAN and military intelligence organisations. Their eventual fate and whereabouts is a mystery that has not been satisfactorily resolved to this day.."*

Japan's midget submarine program started in 1933. In 1938 construction started at Kure on 48 midgets of the type that subsequently raided Pearl, Diego Suarez and Sydney Harbours. These so-called "midget" submarines were 81 ft long, had a 6 ft beam, a 6 ft draft and displaced 46 tons. They were built of welded 5/16 inch steel plate and were intended to take two 5 ft 6 in long, 17 inch diameter torpedoes with 700 lb warheads to within 1000 yards of a worthwhile target in a harbour. They were piggy-backed aboard large I Class mother submarines to within about 10 miles of the target harbour, and after a raid were expected to rendezvous with their mother submarine then about 40 miles away, The submarine's crew of two was then to be recovered and the midget scuttled by two 60 lb charges fired through a timer.

The Japanese expected such success from their fleet of midgets that they withdrew five of their large strategic submarine fleet for modification as mother-submarines. Fortunately for the Allies, their hopes were never realised, (other than at Diego Suarez where the Royal Navy battleship RAMILLIES was badly damaged and a tanker, BRITISH LOYALTY, sunk).

Although the mechanisms of these midget submarines were quite complex, there were always problems with stability and ballasting, particularly after the launch of a torpedo. Fore and aft trim was supposed to be maintained by moving a large weight along a longitudinal track. But there were also 534 lead "pigs" weighing a ton, which could be (and were) moved by hand to correct heel or for and aft trim.

The battery stack for the 600 HP motor was in two large compartments, one with 72 two volt batteries (each with 70 plates) the other with 136 batteries. The stacks could be switched to provide either 52, 104 or 208 volts to the reversible motor. Batteries were brought up to charge by an umbilical from the mother submarine.

On a full charge, the submarine could attain 23 knots on the surface, and 18 knots submerged for about 3/4 hour. At about 2 knots their range was about 100 nautical miles.

It was inconceivable that these tactical weapons would not have a means of communication, particularly for rendezvous. But intensive searches of the War Memorial Research Records, Australian Archives, Garden Island and Australian Maritime Museums, even the Washington Navy Yard, and the Royal Navy Historical Branch of Ministry of Defence in London, had failed to produce a comprehensive report or photographs of the communications equipment.

Proof of its existence was that at the time of Pearl Harbour, transmissions from Ensign Yokoyama's midget (to the effect that *"he had succeeded"*) had been picked up aboard the Japanese light cruiser "Katori" which was at

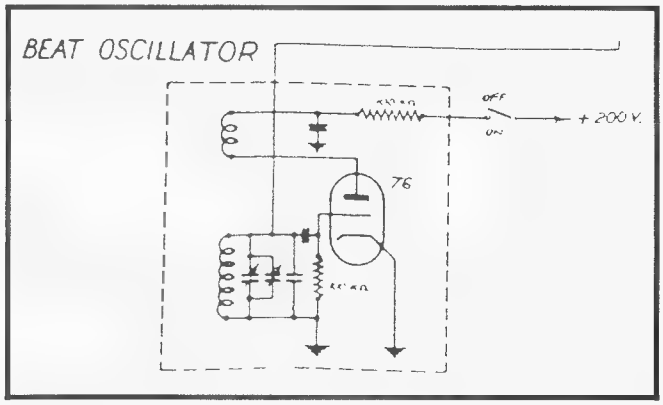


Fig. 1

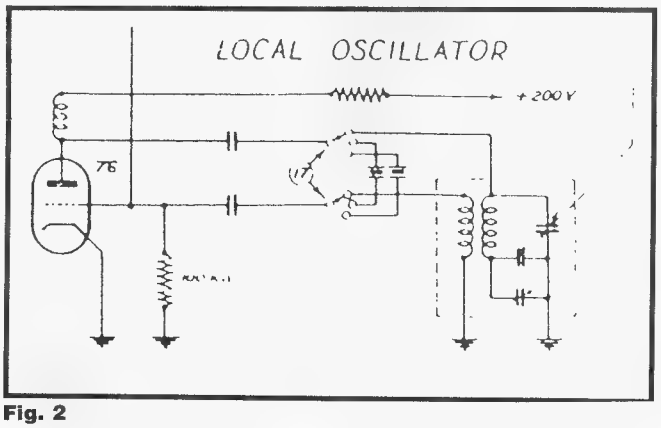


Fig. 2

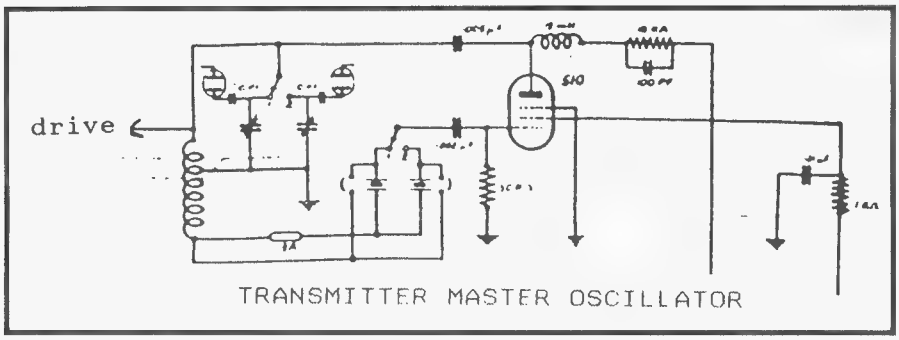


Fig. 3

Kwajalein in the Marshall Islands 2300 miles to the south west. There was thus the possibility, given the very short antenna, that the equipment in use might have been low band VHF, and that this intercept was an early example of either Es or TEP propagation.

Captain Sasaski, who was in command of the Sydney Harbour operation, was heard to report to his HQ that up to the time set for rendezvous with his returning midgets, he had received no communication from them.

Two brief reports in the NSW Archives by the Port of Sydney W/T Officer (Commissioned Telegraphist A Brooks) confirmed that two sets of HF equipment had been salvaged and the best of these sent to Navy Office Melbourne. There was now no doubt about the presence of HF wireless on the midgets that entered Sydney Harbour in July 1942.

An exhaustive search in the ACT and NSW for a report on this salvaged equipment produced only the title of a likely file held in the Victorian Archives. Allan Doble VK3AMD kindly volunteered to inspect this file in Melbourne.

To date, no photographs of the equipment, or the equipment itself, has been found anywhere in the world. So, to our amazement and pleasure, Allan found a schematic of the W/T equipment, and an engineering drawing made at Garden Island in 1942 showing the retractable aerial in the conning tower and the position of W/T equipment on the bulkhead of the control room. The photocopy of the schematic is unclear in places, but enough has been gleaned to show that the submarine wireless equipment, although conventional, was of good innovative design.

An article in the March 1994 issue of the "Oldtimers" newsletter OTN was probably the first published anywhere in the world to describe the communication equipment fitted to Japanese "midget" submarines in 1942. An updated version of that description follows.

The equipment to be described was manufactured by Japan's OKI Electric Company and subsequently examined by Navy Office Melbourne. This description is based on a local schematic reconstructed from the water damaged Japanese schematic for equipment bearing serial number 33. No photographs or written report appear to exist, and the weight of the equipment is unknown. The transmitter and receiver were in the same aluminium case measuring 15.5 inches by 10.5 inches by 11 inches.

Receiver

The receiver was a 7 valve superheterodyne using a 6D6 tuned RF stage, a 6L7G mixer, 6D6 IF, 6B7 2nd detector and 1st audio, transformer coupled to a 42 audio output stage. The beat oscillator was a 76 valve configured as a conventional feedback oscillator (see Fig 1).

The local oscillator (also a 76 valve) was unusual in that it used either of two crystal frequencies, as well as having provision to pre-set the receiver to a VFO frequency between 7900 and 10100 kcs (kHz) (see Fig 2). The local oscillator tuning condenser was ganged to the RF and mixer stages tuning condensers. The internal pre-set tuning dial was calibrated 0-100 and a graph was provided to translate dial readings to frequency.

On one equipment recovered from Sydney Harbour the receiver local oscillator crystal was branded 8755 kc, and was measured as 4696.1 kc which, when doubled, suggests a receiver IF of about 635 kc.

AVC was available and gain was controlled by varying the cathode bias on the RF and IF stages. The plate load on the 42 audio output valve was an iron core choke with two headphone outlets coupled to the plate via a condenser, suggesting that headphones (called "listening apparatus") were of high impedance.

The receiver RF and IF stage plates were fed from a 200 volt DC rail via tuned RF chokes or traps. The power supply was a 250 volt vibrator supply, dropped to 200 volts for the receiver. All valve suppressor grids were tied to ground. All screens were

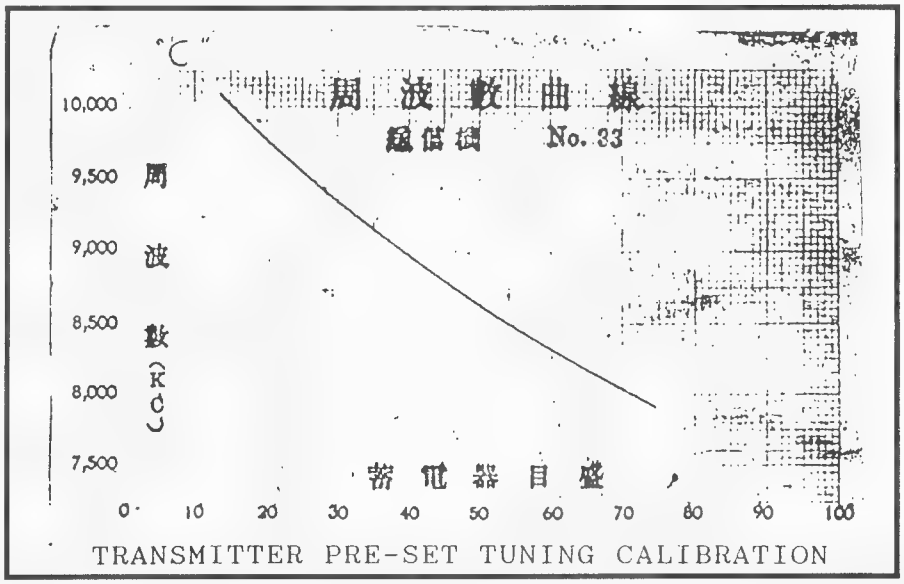


Fig. 4

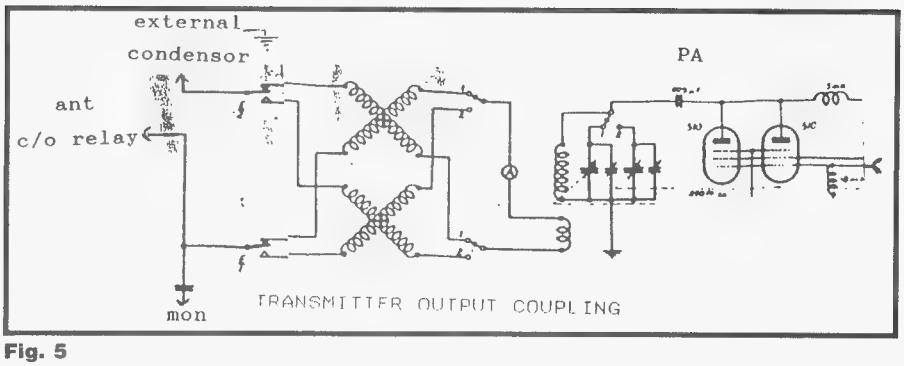


Fig. 5

fed from the 200 volt rail via a dropping resistor. Transmitter sidetone was fed to the 1st audio valve plate. The antenna was directly connected to the receiver through the transmit/receive relay, rather than through the antenna coupling networks provided for the transmitter.

The Transmitter

The transmitter was a 2 stage MOPA two frequency device using pentode valves equivalent to the RK20. Two 510 (12 volt filament) valves in parallel were used as the PA with 1000 volts on the plates provided by a motor generator, and 250 volts on the screen from the vibrator power supply normally used to operate the receiver.

Most functions were activated by one or other of 5 relays. Provision was made for an external "High Voltage Gauge" and the 1000 volt HT rail was fused at 1 amp. DC CW input would have been about 200 watts, representing about 100 watts output.

The oscillator valve was also a type 510, with its plate fed from the 1000 volt rail via a dropping resistor (see Fig 3). On one equipment recovered from Sydney Harbour, the transmit crystal selector switch was jammed on the setting for 8755 kc.

On the second set of recovered equipment the transmit frequencies were 7955 or 8950 kc. This suggests that each submarine communicated with its parent submarine on an individual, rather than a common frequency. The oscillator could be made to operate as a self-excited Hartley oscillator by setting an internal jumper across either, or both, crystals. Transmission could then be on either of two pre-set and pre-tuned frequencies in the range 7900 to 10100 kc. A calibration chart was provided for use by the technician tuning the equipment to a non-crystal frequency (see Fig 4).

No metering was provided, but a neon tube across each of the two oscillator output tank tuning condensers was used to show the presence of drive to the PA.

The transmitter was capable of telephone or telegraph operation. The tone oscillator for MCW operation was a transformer-coupled feedback oscillator using another type 76 valve. In telegraph mode both oscillator and PA plates and screens were keyed by relays. R/C click filters were used across the relay contacts, as in amateur practice. Transmitter adjustments were made on full power.

There was one PA tank coil but two preset PA plate tuning condensers, and two output coupling devices. The tuning condensers were ganged to the oscillator crystal-selector switch, so selection of the crystal also selected the appropriate output tuning condenser and output tuning goniometer, The gonios were inductively coupled to the parallel tuned PA tank coil. The earthy side of the tuning gonio was fed to ground via an external fixed capacitor (see Fig 5).

Transformer coupled grid modulation from a carbon handpiece (microphone) was provided for the PA (see Fig 6). There was no microphone gain control and no microphone pre-amplifier. A sample of RF was fed via a neon tube and filter back to the receiver 1st audio valve plate, for sidetone. The only meter shown on the schematic is an aerial current meter, but this is not mentioned as having been installed.

Antenna

The aerial was a metal rod 2 ft 3 inches long and 2.5 inches in diameter situated at the foremost end of the conning tower. It was raised and lowered by a handwheel situated overhead forward in the control room. When in a lowered position the apex of the aerial, which was slightly convex in shape, was flush with the top of the conning tower.

The feeder to the aerial consisted of a 1.5 inches diameter rubber-insulated cable which coiled at the base of the conning tower when the aerial was lowered. The feeder cable passed through a pressure gland into the control room and was clipped diagonally across and down the front bulkhead to the transmitter receiver unit on the bulkhead near the floor.

Before reaching the transmitter unit, the rubber insulation was abruptly tapered to form a flexible cable for connecting to the aerial terminal of the transmitter and receiver unit. Another terminal on the unit allowed the external "balancing condenser" to be inserted between chassis and the earthy end of the goniometer type output tuning coils.

The schematic can be found in Victorian Archives Document MP1049/5- File 2026/21/36. **ar**

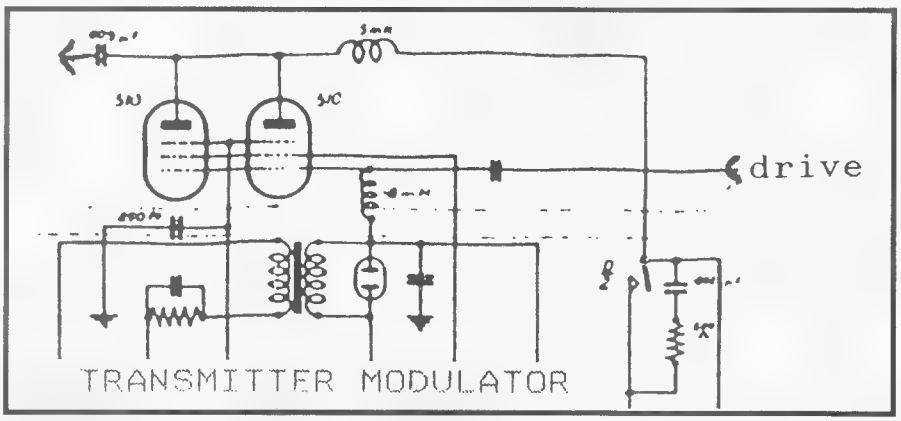
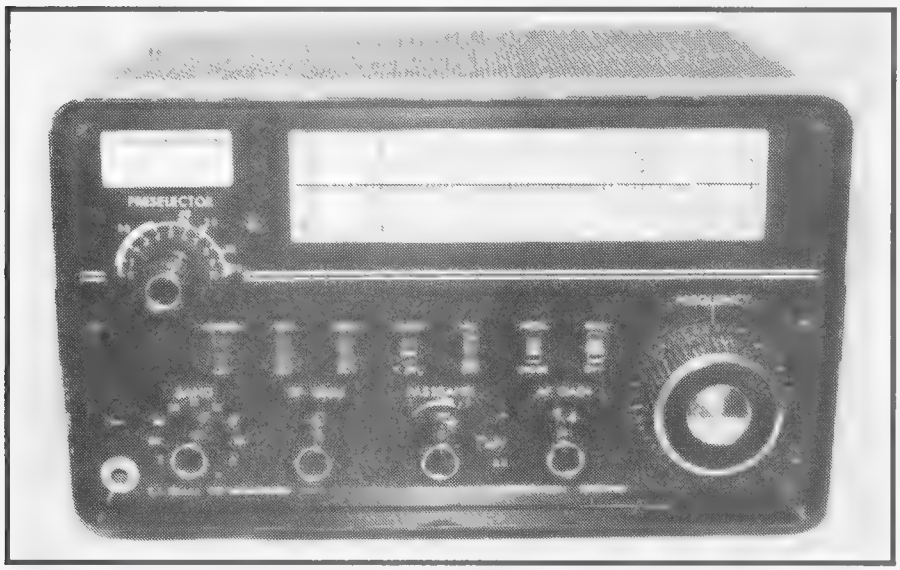


Fig. 6

Amateur Radio on a Budget — Part 2

*"Doc" Wescombe-Down VK5HP/VK4CMY**



Drake 2-B HF, triple conversion, all valve receiver.

Part 1 shared some ethos, anecdotal experiences and personal disclosures so Part 2 should provide some more "meat" on the subject.

There are many areas to be considered, including:

- Safety
- Service backup and spare parts
- Home building or not
- Space availability
- TVI/BCI potential
- Initial cost
- Personal preferences
- AC or DC operation
- HF, VHF, UHF or any combination
- Type of antenna(s) to be erected.

Of these, safety and TVI/BCI potential probably loom as the most important. Ensure used gear has safe power cords and plugs, switching, electrolytic capacitors and transformers. Time spent in detailed examination and thorough cleaning of pre-owned rigs is vital. Ensure adequate RF screening exists and check with a field strength meter plus your own TV and stereo units. Upon "firing up", check with your neighbours too!

When choosing older equipment it is an implied "rule of the game" that spares may no longer be available. Allow for that when making the choice and negotiating the price. After purchase, a follow-up advertisement for a "basket case" of similar type will often bring you a cheap and ready source of spare parts. Remember, it's all in the timing and how you spread word of your needs. This particularly applies to buying older homebrew equipment but it is always cheap!

If your desk top does not favour an AR88 receiver, then don't look for one. If you don't want 110 volt equipment then avoid it. The cheap TH3 at the hamfest is not a bargain if it may incite World War III with YL and/or council. If your location does not favour it, forget the el cheapo ex-electricity authority 50 metre tower with revolving platform. If you don't like switches, stay away from separate TX/RX combinations or rigs like the Swan 700. Find VOX equipped gear. If you want to go mobile one day, forget AR7, Super Pro and FL2100 units. Spend maximum time looking at, reading up on, and asking about, all the different units; and there are dozens and dozens of them.

Budget buying is about timing, but it is also about options. The FT101 doesn't pop up but a TS520 does. Be flexible about your basic principle rather than having tunnel focus. Get on the air first and start enjoying your hobby, then look for more specific equipment if you want. I have bought and sold 30 or more HF rigs to get my modest station to where it is today — partly functional, partly nostalgia.

Do you need an inbuilt power supply or could you make do with a separate unit tucked out of sight, safe and ventilated? Do you require a separate VFO or can you really come a bit down the track? Do you require an amateur band receiver or a general coverage version? Can you build some of your own "add-ons" (eg crystal filter for CW, external speaker unit, pre-amp, ATU, antenna, antenna

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Yaesu FT7 HF, early full solid state transceiver.

feeders [open wire], SWR indicator, keyer, etc)?

What sort of physical layout do you want? Vertical (rack style) or horizontal (desk top), or a combination? Do you concentrate your operating on one band, one mode or one power level? If so, select your options accordingly. A Swan 40 m mobile rig installed as a base station with a homebuilt ATU and delta loop antenna or vertical will get you going for about $100. During sunspot lulls (eg now) do you need 10 m, 15 m, or 20 m? You could enjoy yourself on 160 m, 80 m, 40 m, or VHF/UHF or any options from these and forward plan to upgrade your station in four or five years time when DX conditions improve.

Need — Want — Like — Prefer.

How we confuse these in our lives! If you can objectively undertake your own needs analysis and commence option generation from there, the confusion level should be lower (eg "Yes, I realise that DX working is not at a premium at the moment, so I can work on skill development, local contesting, local award hunting and save up for something better if I start now with an FT101, HW101 or TS520.").

You then advertise and look for one of these, land it successfully, check it thoroughly (or have someone do it for you), rig an aerial and ATU, clear any TVI/BCI and then "happy days" on the air.

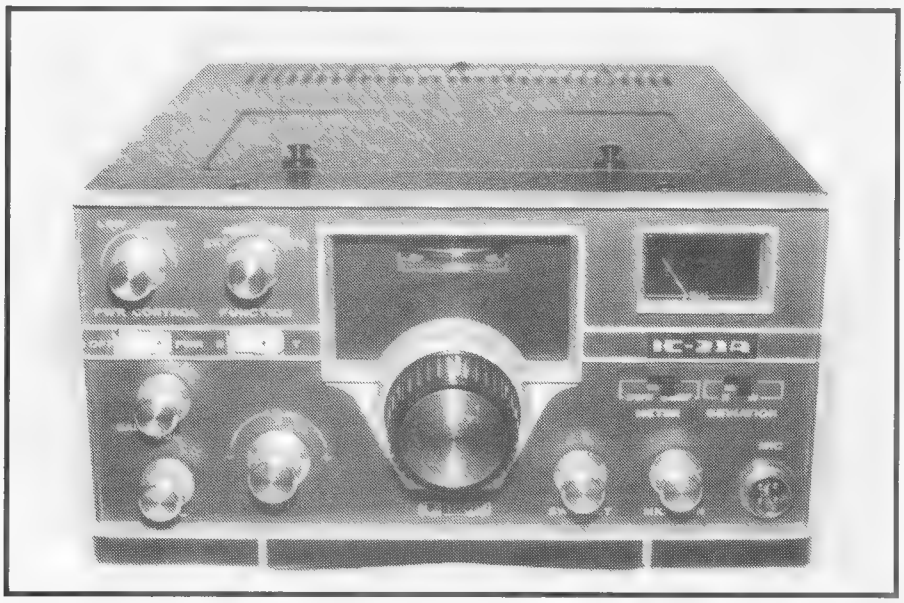
As you chat, either locally or to far away places, you will add to your knowledge of rigs, bands, propagation, station accessories, aerials, and so on. Down the track, this information will assist you in further decision making on station improvements.

Those who run to the dealer with a cheque book or "plastic", and run back with a "whistlebell transceiver", "crankenboomer" amplifier and "skylighter stick" aerial may be missing out on a lot! Yet we hear them every day quoting specifications from dealers and manufacturers data sheets.

Is this amateur radio? Not for me.

Whatever your choice, enjoy the outcome.

*C/o PO Dalveen QLD 4374



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Technical Abstracts

Gil Sones VK3AUI

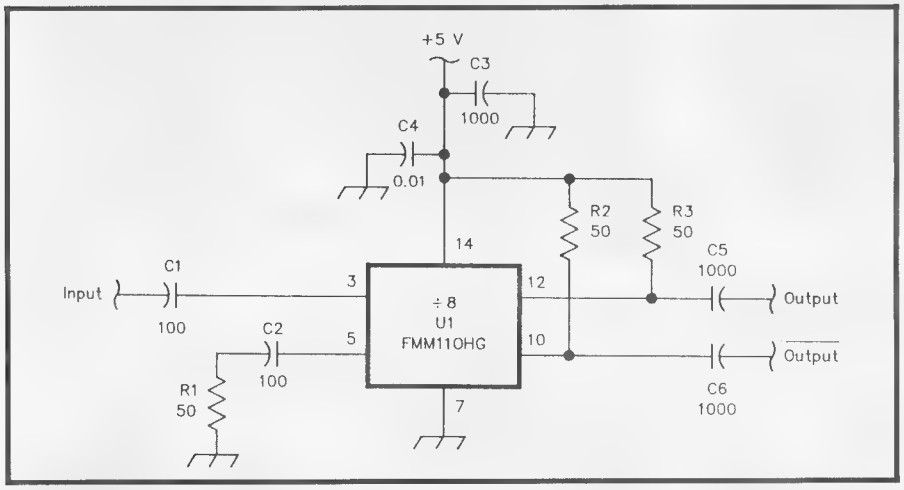

Fig 1 Schematic Diagram of the Prescaler Circuit
C1, C2 100 pF Single layer SMD chip Caps.
C3, C5, C6 1000 pF Single layer SMD chip Caps.
C4 0.01 μF SMD Cap.
R1, R2, R3 50 Ω Chip Resistors
U1 Fujitsu FMM110HG prescaler IC.

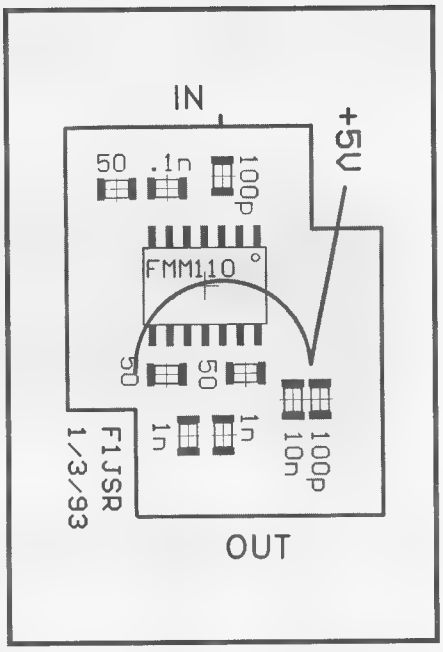

Fig 3 Component Placement Diagram for the Prescaler.

12 GHz Prescaler

Fujitsu make a 12 GHz divide by 8 prescaler. It is a GaAs monolithic surface mount packaged IC. In *QEX* for September 1993 a working PCB using this IC was described by A Vilaseca HB9SLV and S Rivére F1JSR. The PCB used ordinary fibreglass laminate and worked with less than 1 mW input.

The Fujitsu IC type FMM110HG has the following characteristics:-

Input Frequency	0.6 to 12 GHz
Input Level	0 to +10 dBm
Output Level	+4 dBm typical
Maximum Output Level	+13 dBm
Power Supply	+5V at 120 mA

The circuit is shown in Fig 1. The PCB pattern is shown in Fig 2. The component placement diagram is shown in Fig 3.

Parts are SMD types and the capacitors C1 — C3, C5 & C6 should be single layer SMD types. C4 is less critical. The IC should be soldered to the board by its bottom to ground it and improve heatsinking.

Lead lengths are very critical and microwave techniques must be used. The pcb is soldered into the box and the connectors attached with zero lead lengths. A feedthrough is used on the supply lead.

In Fig 4 are two suggested uses for the prescaler. You can use it as a counter front end or you can use it as part of a microwave frequency synthesizer. One of the prototypes enabled the stabilisation of a Gunn oscillator allowing the use of narrow band FM. This would give a much lower signal threshold for the system. Another was used with a dielectric resonator oscillator.

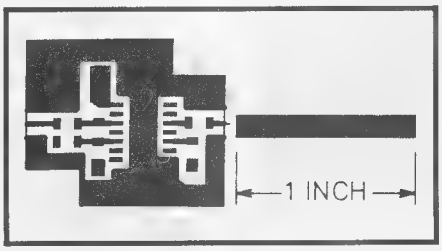

Fig 2 Etching Pattern
Components are surface mounted on the circuit side of the board with the other side left unetched. Use Epoxy Fibreglass board.

A point to note is that the prescaler may oscillate in the absence of an input signal. The oscillation is in the 650 MHz range and ceases when an input signal is applied. Adjustment of the supply voltage in the range 4.5 to 5.5 volts may be useful to optimise operation.

Cost has been left to last. In the USA or Europe the cost was quoted as $US300 for the whole device. While this may cool your ardour it is a fairly reasonable price for these sorts of units.

Digital SSB

An IC has been released by Harris in the USA which is virtually a Weaver method SSB receiver. The Harris HSP50016GC-52 Digital Down Converter (DDC) is a complete Weaver, or third method, receiver implemented digitally in one CMOS chip. A demonstration application circuit is in *QEX* for March 1994. The author is P T Anderson KC1HR.

External to the chip you need to digitise the incoming RF signal with a fairly fancy A to D Converter. This requires a 16 bit or better A/D working at 52 megasamples per second. At the output you need a 16 bit D/A to provide the audio output. You also need a clock oscillator and a computer to talk to the IC.

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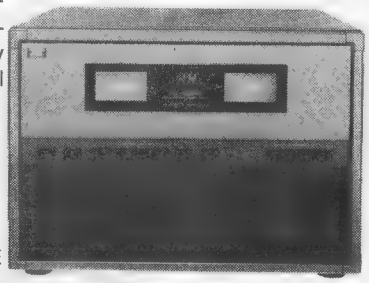

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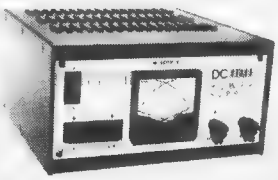

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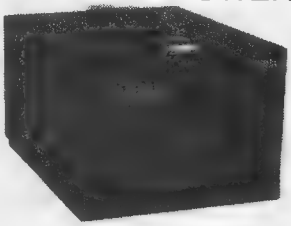

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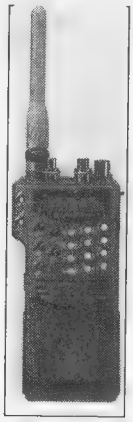

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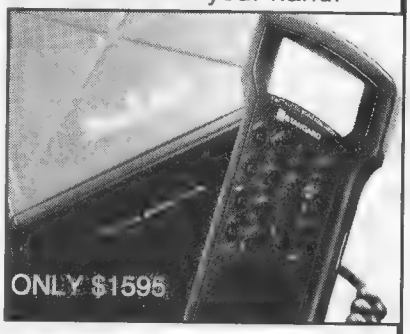

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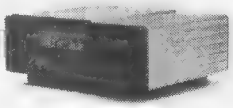

NEW AOR: AR3030

General coverage receiver with mechanical filter, DDS, and ECSS. AOR has introduced new standards in receiver design. With DDS, ECSS and Collins mechanical filters, brings the AR3030 receiver in the $4000 class

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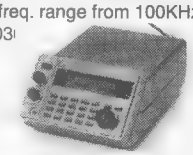
AOR: AR-3000A

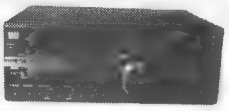
The "TOP" of all communication receivers-scanners is the famous AR-3000A. This multi-mode radio covers a freq. range from 100KHz to 203



$ 1950

JRC: NRD-535G

World's best short wave receiver. Superb features include double front-end tuned circuit, optional ECSS, band pass tuning, all mode reception, memories, search, scan & sweep and modular construction.



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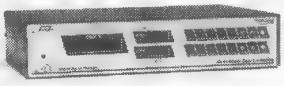
DIGITAL SYSTEMS

AEA DATA CONTROLLERS *represent the most exciting value in amateur radio today.* Trip to the future with these digital signal processing DSP/MULTI MODE DATA CONTROLLERS. Internal software provides all popular digital amateur data modes. Unique LCD read-out on the DSP-2232 displays the mode and diagnostics for both channels.

DSP-1232 $1495 DSP-2232 $1895



PK-900: THE STEPPING STONE BETWEEN '223MBX & DSP-2232

With features borrowed from the '2232', plus unique additions: dual simultaneous ports, software selectable modems, 9600 baud modem & PACTOR, and many other features.

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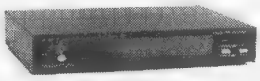
Over 7000 units sold worldwide. PK-232MBX, the world's leading multi-mode controller combines all amateur data communication modes in one comprehensive unit.



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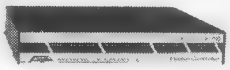
PK88 HF/VHF PACKET TNC BEST VALUE IN PACKET RADIO!

The PK-88 is loaded with unique features and backed with proven hardware and software design.



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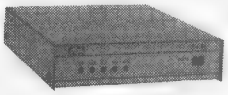

ONLY $499

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PC-PAKRATT for Windows makes control of your AEA Data Controller easier and more enjoyable! $250

AEA FAX II

Tired of waiting for Weather Reports on Television. Buy AEA FAX II $275

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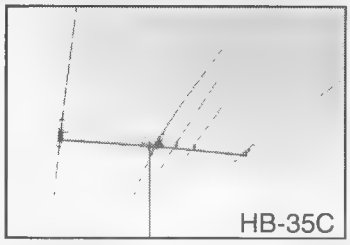
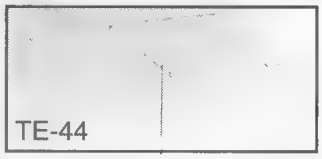
TET-EMTRON antennas are Australian designed and made and are now exported and known all over the world. You will find TET-EMTON in Europe, South Africa, New Zealand, Japan and Korea and America. Why? Because TET-EMTRON systems are innovative, reliable and manufactured from top grade materials.

THREE BAND BEAMS FOR 14-21-28 MHz BANDS

TE-13 rotatable dipole
TE-23 2-element beam
TE-23M 2-ele minibeam
TE-33 3-element beam
TE-43 4-element beam
HB-35C 5-element trapless beam



FOUR BAND BEAMS FOR 7-14-21-28 MHz BANDS

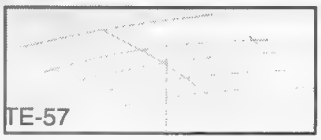


TE-14 rotatable dipole
TE-34 3-ele beam on 14-21-28MHz, 1-ele on 7MHz
TE-44 4-ele beam on 14-21-28MHz, 1-ele on 7MHz

SIX BAND BEAMS FOR 10-14-18-21-25-28 MHz BANDS

TE-26 dual rotatable dipole
TE-46 3-ele beam on 14-21-28MHz, 1-ele on 10-18-25MHz
TE-56 3-ele beam on 14-21-28MHz, 2-ele on 10-18-25MHz

SEVEN BAND BEAMS FOR 7-10-14-18-21-25-28 MHz BANDS



TE-27 dual rotatable dipole
TE-47 3-ele on 14-21-28MHz, 1-ele on 7-10-18-25MHz
TE-57 3-ele on 14-21-28MHz, 2 -ele on 10-18-25MHz, 1-ele on 7MHz

NEW-NEW-NEW

ST-1 SATELLITE TRACKER

Control your KENPRO 5400/5600 AZIMUTH-ELEVATION ANTENNA ROTATOR. Unique new hardware and software for automatic tracking of satellites. Provides initial tuning and DOPPLER CORRECTION during satellite pass. Works with Instant Track, Quick Track and Real Track software. MANY OTHER FEATURES!

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Grab your Kenpro Rotator before the price hike! Unstable $Australian will force increases soon!

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Fax (07)394 4316

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Fax (09)472 3795

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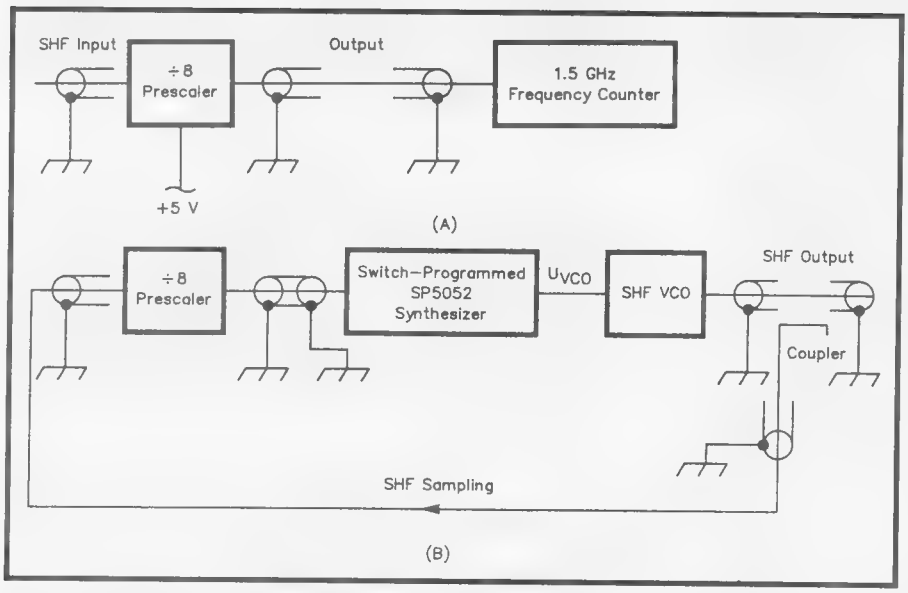

Fig 4 Block Diagrams of the Prescaler Applications. At A, use with a 1.5 GHz frequency counter. B shows an SHF Synthesizer using the Prescaler.

The DDC performance specification is as follows:-
Clock Frequency 0 to 52 MHz
Input Signal Frequency Zero to Half the Clock Frequency.
Spurious Free Dynamic Range 102 dB.
Passband (-3 dB) to Stop Band (-102 dB) Shape Factor 1.5.
Passband Width variable over a wide range.
Output passband centre frequency fixed at 1.79 times the passband width in real output mode.
Output passband centre frequency fixed at zero in quadrature output mode.

A block diagram of the DDC is given in Fig 5. The decimating filters have an output sample rate which is a fraction of the input sample rate.

With relatively little development a complete HF digital SSB receiver is now a possibility. This chip nearly reaches 30 MHz and with other developments the realisation of a complete digital HF SSB receiver must be close. The costs at the moment are fairly high with the DDC in the $US160 range and the other chips being fairly high spec and costly but the price of ICs has a way of tumbling.

Fox Hunting With a Handheld

A handheld can be used as a direction finder in a fox hunt but it does lack control of the received signal strength. In *QST* for January 1994 Glen Rickerd KC6TNF describes a cheap attenuator to control the signal reaching the handheld radio.

Strictly Ham Pty. Ltd. ACN 059 638 407
14 Church St, Bayswater VIC. 3153
PH:(03) 729 7656 FAX:(03) 729 7422
Mornington Peninsula Call 059 839 162 AH 018 330 583

ALINCO
DR-599T DUAL BAND MOBILE $1199.00
DR-130T 2M MOBILE $599.00
DJ-580T 2M/70CM HANDHELD $829.00
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SWR POWER METERS FROM $189.00
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KENPRO ROTATORS
KR-400 $595.00
KR-400RC $675.00
KR-1000 $1135.00

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PK-232MBX $695.00
DSP-1232 $1495.00
DSP-2232 $1895.00

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MOBILE ANTENNA'S FROM $75.00

COAXIAL CABLE
RG-213/U $160.00 PER 100M ROLL
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ALL COAX IS MIL SPEC

AOR AR-3000A
NOW IN STOCK THE AOR AR-3000A
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TET - EMTRON
WE CARRY A GOOD RANGE OF TET - EMTRON ANTENNAS FOR WHATEVER YOUR HF REQUIREMENTS

KENWOOD AUTHORIZED DEALER
FROM THE WORLD'S SMALLEST HF TRANSCEIVER THE TS-50S TO THE FLAGSHIP OF THE RANGE THE TS-950SDX, WE CARRY THE ENTIRE RANGE ON THE SHELF.

MELBOURNE'S BIGGEST KENWOOD SPECIALIST

ICOM AUTHORIZED DEALER
WE ALSO CARRY A LARGE RANGE OF ICOM RADIOS AND ACCESSORIES IN STOCK
WE HAVE A LARGE RANGE OF DIAMOND ANTENNA'S IN STOCK

DUAL BAND BASE ANTENNAS 2m/70cm
X-30 3.0db/5.5db $129.00
X-50 4.5db/7.2db $149.00
X-200 6.0db/8.0db $199.00
X-300 6.5db/9.0db $229.00
X-400 7.9db/11.0db $299.00
X-510M 8.3db/11.7db $349.00

TRI BAND BASE ANTENNAS 2m/70cm/23cm
X-4000 3.1db/6.3db/9.7db $249.00
X-5000 4.5db/8.3db/11.7db $279.00
X-6000 6.5db/9.0db/10.0db $309.00
X-7000 8.3db/11.7db/13.7db $399.00
WE ALSO CARRY DUPLEXERS AND TRIPLEXERS FOR WHATEVER YOUR REQUIREMENT FOR 10M, 6M, 2M, 70CM AND 23CM
ALSO MOBILE TRIBAND ANTENNA FOR 2/70/23CM, 6/2/70CM, 10/2/70CM, 15-10/2/70CM

G039A

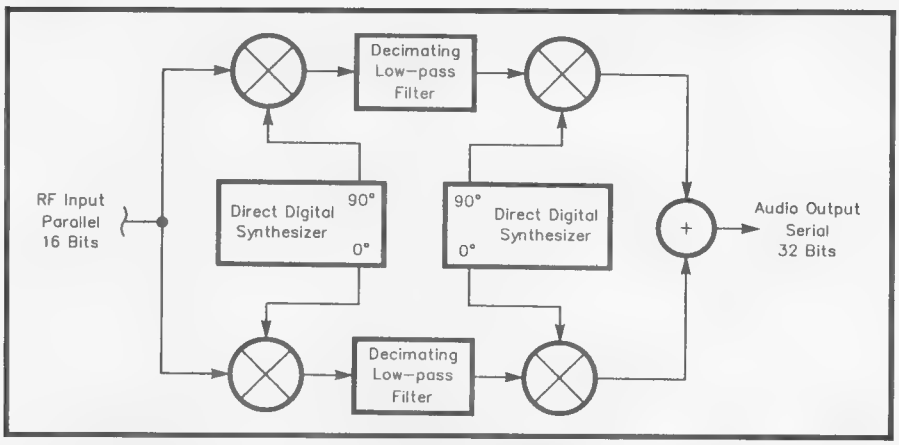


Fig 5 Block diagram of the Harris HSP50016 Digital Down Converter. This is a complete Weaver method receiver in one digital chip.

To foxhunt with a handheld the basic technique is to clutch the handheld close to your chest or tummy and then turn around. The signal will be absorbed in one direction by your body giving a null to the rear. This works if the signal is not too strong but as you get closer the null will be hard to pick. The sensitivity pattern is illustrated in Fig 6.

An attenuator is needed, but only a limited amount of attenuation is possible with standard attenuators as the signal leaks in through the case of the handheld. Glen KC6TNF describes an attenuator which gets over this problem and uses cheap and readily obtainable materials.

The handheld is lowered into a mailing tube covered in aluminium foil and the further into the tube the greater the attenuation. The tube acts as a waveguide beyond cutoff and quite high attenuation is possible. This is the same principle used in some signal generators and is used in shielding circuits.

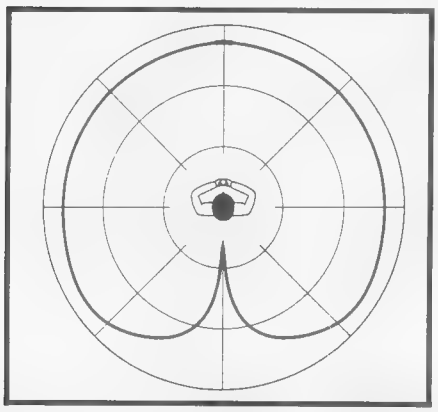


Fig 6 Handheld receive sensitivity pattern when using body fade for direction finding.

Using the attenuator tube. The H-T is suspended by the wrist strap inside the tube. For very strong signals such as those encountered close to a hidden transmitter, remove the rubber duck antenna and suspend the H-T deeper within the tube, adjusting the depth for optimum signal strength. Photo from *QST* by Don Pass.

A mailing tube is chosen which will allow the handheld to be lowered into it. The exterior of the tube is then covered with aluminium cooking foil. Any joins should be overlapped generously. The bottom of the tube may be covered if desired but you probably won't have to if sufficient attenuation can be obtained.

The handheld is lowered into the tube by the wrist strap or you could attach a longer non-metallic cord. The handheld is lowered into the tube until sufficient attenuation is obtained, giving a weak and scratchy signal. Then, clutching the tube holding the handheld to your chest rotate slowly to find the null. Adjust the attenuation to get the best null. A shoelace can be pressed into service to lengthen the handheld wrist strap if needed.

Some practice is needed to develop the technique but the costs are minimal.

QSP News

New Federal Office Postal Address

After fifteen years, PO Box 300 Caulfield South is no longer the postal address for mail for the Federal Office and *Amateur Radio* magazine. A new post office has opened only a few doors along from the Federal Office and, as from 3 May 1994, the new postal address for the Federal Office is:
PO Box 2175
Caulfield Junction VIC 3161

Have you advised the WIA Federal Office of your new Callsign? Use the form on the reverse side of the Amateur Radio Address Flysheet.

Random Radiators

with Ron Cook VK3AFW and Ron Fisher VK3OM

The Automatcher

The fully automatic amateur antenna matcher, yours for only $99.00. Provides a maximum VSWR of 1.5:1 on any HF amateur band, any mode, self powered, fully automatic, special circuitry. In the past couple of years two manufacturers have been running adverts with wording similar to the opening sentences in US amateur magazines. Are the claims true? Strictly speaking, yes.

The ARRL has carried out tests on one brand and we believe that the second brand uses the same system. How is it done? It seems too good to be true. One Ron says that his grandmother always said that if it seems too good to be true then its very likely too good to be true. Well, the units can do what is claimed. We've put our heads together and figured out how it can be done. And, here's the good news, you can build one for less than $50! Does this mean the end of the Z-Match? No, there is a trade-off.

Figure 1 shows a coax connector connected to a balanced L network of resistors, R1, R2 and R3. As can be seen they can be regarded as being in series. If the total resistance of these resistors is 50 ohms, then a 50 ohm coaxial cable connected to the connector would see a good match and, providing the resistors had low series inductance and low shunt capacitance, the VSWR on the line would be close to 1.0:1. Often such arrangements are called dummy loads. There, you thought it was familiar, didn't you. Dummy loads do not make good antennas as they convert virtually all the incident power to heat. Very little signal is radiated.

Now if we connect some wire at points A and A, the ends of R1, some of the power flowing down the coax will be radiated by virtue of the current flowing in these wires. We could connect a full size dipole. Compared to the usual arrangement we now have R1 shunted across the feed point and R2 and R3 in series with the feed line. It is easy to understand that if the dipole were very short, then the dummy load would still be a good dummy load and only a little signal would be radiated. We can probably guess that increasing the length of the dipole would increase the signal radiated by the system. Interestingly enough the VSWR won't change much.

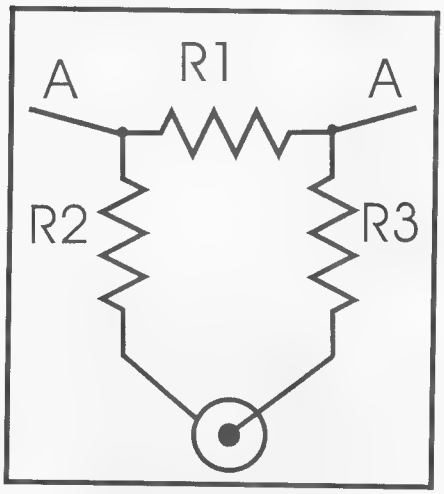


Fig 1 — The automatch circuit.

Some of you may recognise the system. In many RF measurement situations it is necessary to stabilise the load so a resistive attenuator pad is placed in circuit. For example, if antenna gain tests are being done it is common to put a 10 or 20 dB pad at the input of the measuring receiver to provide a high quality 50 ohm load for the antenna. This reduces the receiver sensitivity but that is not an important issue. Introducing an attenuator between the antenna and transmission line improves the match at the expense of transmitter power. A 3 dB pad will reduce a very high VSWR to 3:1.

It works like this. Suppose we have a transmitter connected to a feed line which is connected in turn to a very badly matched antenna. The VSWR, we will assume, is effectively infinite. Suppose that a 3 dB attenuator pad is connected between the antenna and the feed line. Consider what happens when the transmitter is keyed. The output flows up the feed line to the attenuator. Half the power from the transmitter is absorbed in the 3 dB pad. Virtually all the remaining power is reflected by the very badly matched antenna. Half this reflected power is absorbed by the 3 dB pad as the reflected power heads

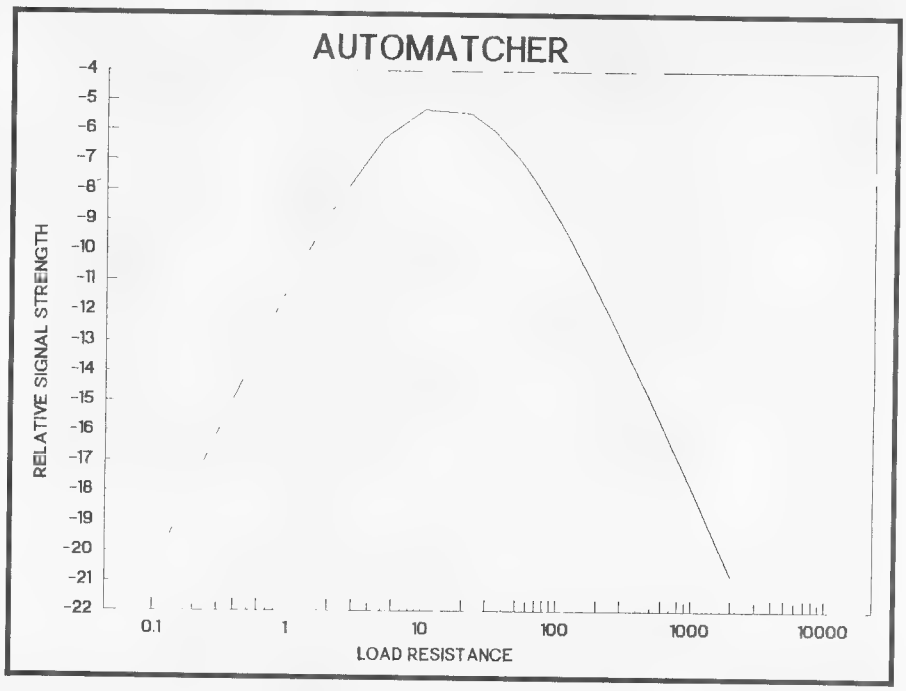


Fig 2 — Load vs relative signal.

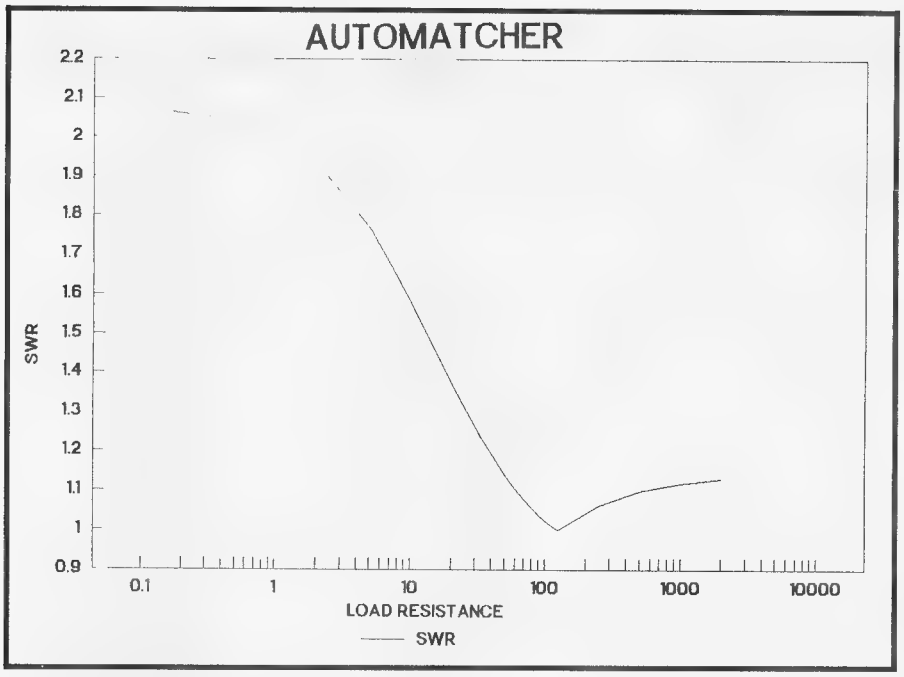


Fig 3 — SWR vs load (antenna) resistance.

back toward the transmitter. So the power travelling back along the coax is half of half of the transmitter power, or one quarter of the transmitter power. This is, if you care to do the calculations, equivalent to a VSWR of 3:1. It can be seen that if a 3 dB pad reduces the almost infinite SWR to 3:1 then lesser VSWR's will be made to look even better. A 6 dB pad will give even better improvement in the VSWR. Of course the power fed into the antenna is reduced by 3 or 6 dB as the case may be in our two examples, and if a mismatch exists then only a fraction of that will be radiated.

The matcher in Fig 1 is, in fact, an attenuator with the antenna connected across the output. Typical values for R2 and R3 are 12 to 15 ohms, with R1 having a value of 15 to 22 ohms. As the antenna is across R1, higher values of R1 will allow more power to be taken by the antenna. Lower values of R2 and R3 will reduce attenuation but also reduce SWR reduction. It is fairly easy to calculate the attenuation of the automatcher and its SWR for a purely resistive antenna and these results can be used to estimate the effects with a practical reactive antenna. Although the calculations can be done for reactive antennas, it is necessary to do many sets of calculations for various frequencies.

Fig 2 shows that for R1 = 33 ohms and R2 = R3 = 12 ohms, an attenuation of about 5 dB minimum occurs and the VSWR is less than 1.2:1 for a wide range of antenna resistances and likely to be less than 2:1 for any practical HF antenna system. No tuning, no power supply.

Of course the down side is that the radiated signal will be at least 5 dB down on using the system with a conventional ATU (or tuner or matcher or Z-match, they all do the same thing regardless of name). In practice a signal loss of 10 to 25 dB might be more typical. So, if you want a great match for the transmitter, instant "tune-up", and you don't mind being S4 when others are S9, then this is the system for you.

The power rating of the resistors needs to be substantial as the majority of the transmitter power is used to heat them up. A 25 watt 12 ohm resistor can be made from 25, 1 watt 12 ohm resistors. Make up five strings of five resistors in series. Cut the leads fairly short so that the strings are not too long. Connect the five strings in parallel. The result is a 25 watt 12 ohm resistor. If all three resistors are made up with a 25 watt rating then any 100 watt transceiver can be used for SSB, CW or AM and FM if the two latter modes are set for not more than 75 watts.

73 from the two Rons

WIA News

Changes for Outback Radio

The 2.5 million residents of Australia's outback country are to get improved communications with the recent introduction of new services.

Many outback residents rely on high frequency radios for communications and have either no access or very limited access to the telephone service.

There are more than 80,000 HF radios used for this purpose across Australia.

Telstra — the corporate name of the communications company otherwise known to you and me as Telecom Australia — has introduced two services: one is satellite-based and called Satcom-m; the other uses HF and is called Radphone Direct Dial.

The new HF Radphone service allows users to dial directly to just about any telephone number in Australia.

The practise of outback HF users having to call a base station to place a phone call will die out.

Later this year, the facility to send faxes and digital data will be added.

The satellite-based Satcom-m service employs terminals the size of a briefcase, including the antenna.

The HF terminals for the Radphone HF service cost about the same as top-line, multiband HF amateur rigs, while the satellite terminals cost about five times as much.

Once you've got over that little hurdle, then there's the phone bills.....

ALARA

Margaret Loft VK3DML

Well, it has been quite a few years since I last wrote these notes for *Amateur Radio,* so it is good to be back for this month's news. ALARA members all send a very big vote of thanks to Robyn VK3ENX for her sterling effort as the ALARA publicity officer over the last few years. With regret our committee has accepted Robyn's resignation and we all wish her and Colin well in their new home.

The VK5 ALARA girls did not run their "drop in" centre at the Barossa Picnic on 27 March, but they had their display and were represented by Meg VK5AOV, Christine VK5CTY and Sue Mahoney. Also helping was Erica Schnabel.

Dorothy VK2DDB had an ALARA table with a bird's eye view from the first floor at the Gosford field day and met Mary VK4BEM, Pixie VK2KPC, Marjorie VK2AMJ, Aimee FK8FA and Pauline VK2GTB.

Welcome to new members Wilma VK3MWJ, Margaret VK2MAS and Deb Matthews. A copy of the ALARA History is held in the WIA library.

One aspect of belonging to ALARA is the sponsorship of DX YLs into ALARA, and they reciprocate by sponsoring you into their YL group. For the last 10 years Marilyn ZL2BOA and I have built up a wonderful friendship both on air and by correspondence. Through our love of craft we also spend many hours discussing our latest projects, etc. Some years ago Lois WB3EFQ joined our discussion and added to our enjoyment. Marilyn and Lois sponsored each other into their YL groups. I was already a member of YLRL.

Lois and Tom WB3BZN planned a visit to New Zealand in February this year and suggested maybe George and I could be in Napier when they visited Marilyn. George was not able to go but I could. So, on 22 Feb I flew out of Melbourne to Napier and arrived at 0645 UTC, our usual sched time and, although we had met two years ago and talked many hours on air since then, we still sat up until 2 am catching up (to me it was only midnight!).

On Wednesday Marilyn took me to her spinning group where I ended up as guest speaker talking about merino fleece. On Thursday Lois and Tom arrived by train. They did not know I was there as 14 MHz was the pits just before they left and we did not get to tell them I was coming. The talk flew thick and fast and we had our joint birthday party around 11 pm that night. The three of us had so much to talk about comparing all our interests and the cost and the availability, or lack of, in each country.

Marilyn and Lois are still nursing (my previous occupation), we are all hams and all craft people, and the similarities went on and on.

On Friday we did a "Cook's" tour of Napier and then had fish and chips for tea out of paper, a special request from Lois. On Saturday Marilyn arranged a trip out to the Gannet colony at Cape Kidnapper, a trip of 10 km along the beach by tractor and trailer. We left at 10 am (it depends on low tide) and arrived at midday after being bogged in the sand a few times when we had to get off and push. We got soaked a couple of times. Luckily it was a hot day at 28°C (that's hot for Napier). Most people walked up to the top to see the view and more gannets. It is the only colony on a mainland. Usually they are on islands. At age 26 weeks the gannet chicks fly to Australia and then return the following year to stay.

Our trailer had a very flat tyre so we had a bumpy trip back to beat the rising tide. Halfway back a second trailer had a wheel seize so it was a very eventful and most interesting day.

On Sunday Graham ZL2BCK took us into the Kaweka Ranges and we saw some Red Tussock grass in one of the few remaining uncleared areas. We also walked through a native forest area.

On Monday we said goodbye to Lois and Tom. We have lovely memories of four very happy days with them. On Friday morning I had to say goodbye to Marilyn and Graham after 10 days jam packed with so much we had fitted into the time.

Arriving at Papakura I was met by Aola ZL1ALE and Dave ZL1AMN who took me to their home for my last night in New Zealand. After tea I had the pleasure of catching up with some old and new friends Alma ZL1WA, Jackie ZL1TZW, Win ZL1BBN, Biny ZL2AZY and Merv ZL2AVY, Ann ZL1TRH and Ian ZL1BFB, Teresa ZL1VFR and Andy ZL1UTX, Petre ZL1UQT, Pat ZL1LD and Ivor ZL1AGO, Eileen ZL1BRX and Fred ZL1SP, Elva ZL1BIZ and Ian ZL1BKZ, Celia ZL1ALK and Geoff ZL1AYV. Certainly a lovely big group and a wonderful way to end a holiday, all brought about by amateur radio and the fellowship it encourages.

Next month another member of the committee will be the guest writer for this column. **ar**

Left to right Margaret VK3DML, Marilyn ZL2BOA and Lois WB3EFQ.

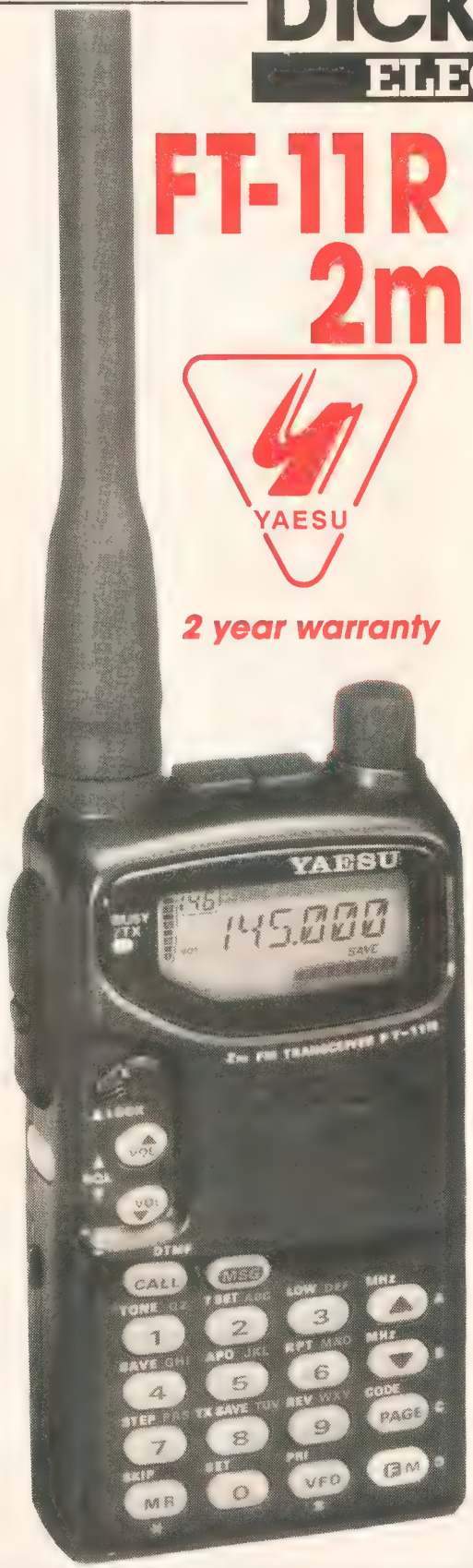
Don't buy stolen equipment — check the serial number against the WIA stolen equipment register first.

DICK SMITH ELECTRONICS

FT-11R Micro Deluxe 2m Handheld

YAESU

2 year warranty



New for '94! One of the world's smallest 2m FM handhelds with a full-size keypad, the Yaesu FT-11R has been reduced in size, but not in features. Designed to fit comfortably in your hand, it's just 57 x 102 x 25.5mm (W.H.D) including the FNB-31 NiCad pack, and weighs only 280 grams.

The result of the latest in miniaturisation, microprocessor control and FET technology, the FT-11R provides a large back-lit LCD screen with full frequency readout, 150 memories (75 in alpha-numeric mode), full function keypad with easy SET mode, and up/down thumb control Volume and Squelch settings. A new high efficiency FET RF amplifier provides 1.5W output standard from the compact 4.8V battery pack, and up to 5W output from 9.6V (using an optional battery pack or PA-10 mobile adaptor). A range of battery life extenders, including Auto Battery Saver, Tx Save, and Auto Power Off (with ultra-low 20uA consumption) are included. Australian version Auto Repeater Shift, DMTF based selective calling and paging, extended 110-180MHz receiver coverage (including the AM aircraft band), and a variety of scanning modes are also provided.

Other new features include naming of memory channels, DTMF Auto-dial memories, and DTMF Message Paging with up to 6 alpha-numeric characters. A large range of accessory lines are also available for easier customisation of your transceiver.

The FT-11R comes with an FNB-31 600mA/H NiCad, belt-clip, approved AC charger, CA-9 charge adaptor and antenna.

Cat D-3640

$699

Shown approximately full size.

NEW FOR '94

Now Available!

Save With Our End Of Financial Year Specials!

Yaesu FT-26 Mini 2m Handheld

Save a huge $70 on this compact, easy-to-use handheld transceiver!

- 144-148MHz Tx, 140-174MHz Rx
- 53 memories, 2 VFOs
- Auto Repeater Shift (VK version)
- DTMF paging, VOX, Auto Power off, DC power socket
- Complete with 700mA/H NiCad, carry case, beltclip and AC charger

Cat D-3600

SAVE $70

Only $399

2 year warranty

Yaesu FT-415 Deluxe 2m Handheld

For this month only, you can save $70 on this compact, fully-featured handheld transceiver!

- 144-148MHz Tx, 140-174MHz Rx
- 41 memories, 2 VFOs
- Keypad frequency entry
- Auto Repeater shift (VK version)
- DTMF paging, variable Auto Battery Saver, Auto Power off, VOX, DC power socket
- Complete with 1000mA/H NiCad (2W RF out), carry case, belt-clip and AC charger

Cat D-3610

SAVE $70

2 year warranty

Only $529

Other Super Specials Include:

Save $10
Revex W502 HF/6m PWR/SWR meter
With accurate PEP metering.
Cat D-1360 **$189**

Save $20
Revex W540 2m/70cm PWR/SWR Meter
Cat D-1370 **$179**

Save $10
250MHz 5-digit Frequency Counter
Cat D-2400 **$69.95**

Save $5
2m 5/8 Wave Mobile Antenna
With 5 year warranty.
Cat D-4207 **$14.95**

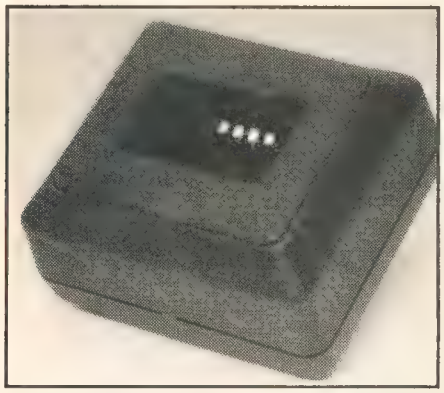
Save $10
2m Telescopic 5/8 Wave Handheld Antenna
Cat D-4333 **$39.95**

Save $20
GST-1 2m/70cm Base Station Vertical Antenna
6dB gain on 2m, 8dB gain on 70cm, stainless steel hardware.
Cat D-4830 **$179**

Save $50
Hustler 5BTV HF 5-Band Trap Vertical Antenna
Cat D-4920 **$299**

Save $20
70cm Module To Suit FT-726R
Great value for parts (especially RF output module).
Cat D-2952 **$59.95**

* All specials are available until June 30 1994 only, or while stocks last. Some products and prices may not be available through Dick Smith Electronics Authorised Stockists.



MasterCharger 1 Fast Desktop Charger

New for '94! At last, an intelligent, fast desktop charger that not only suits most current Yaesu handhelds but also many previous models. Made in USA, the MasterCharger 1 operates from 13.5V DC and uses switch-mode technology plus a Philips battery charge monitor I.C. (with -ΔV full charge detection) to charge NiCad batteries between 6V and 13.2V. Suitable for the FT-23/73, FT-411/411e, FT-470, FT-26, FT-415/815 and FT-530, its charging cradle can easily be replaced, allowing for the insertion of a new cradle to suit earlier Yaesu transceivers (eg FT-209R) or different brands/model handhelds. The MasterCharger 1 requires 12-15V DC at 1.3A, and is supplied with a fused cigarette lighter cable for vehicle use.

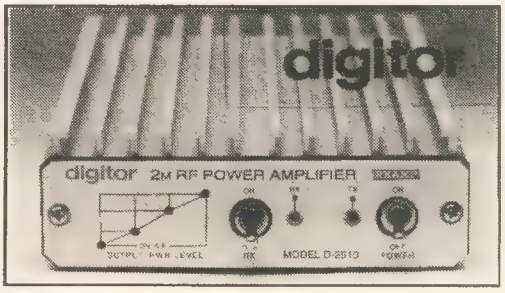
Cat D-3850

Now available - charging cradles to suit various Kenwood, Icom, and Alinco handhelds.

SAVE $30

$169.95

2m RF Power Amplifier



Boost your 2m hand-held's performance with this compact amplifier. Works with 0.3 to 5W input and provides up to 30W RF output, plus has an inbuilt GaAsFet receive pre-amp providing 12dB gain. A large heatsink and metal casing allow for extended transmissions at full output, and a mobile mounting bracket is supplied for vehicle use. Requires 13.8V DC at 5A max. Size 100 x 36 x 175mm (W x H x D).

Cat D-2510

$169.95

NEW FOR '94

FT-990 H.F All-Mode Base Transceiver

YAESU

The FT-990 offers many of the features of the legendary FT-1000 in a more compact and economical base-station package. Its excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display allows very straight - forward operation. The receiver uses a wide dynamic range front end circuit and two DDSs to provide a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM), with high duty cycle transmissions allowed. The internal auto antenna tuner and an inbuilt power supply are standard features, while the customizable RF speech processor and Switched Capacitance Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch filters,IF bandwidth selection, 90 memories and one-touch band-selection.

Cat D-3260

$3995

LAST OPPORTUNITY AT THIS PRICE!
Price Must Vine 30th June '94.
BUY NOW AND SAVE!

BONUS MD-1 Desk Mic

2 Year Warranty

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DICK SMITH ELECTRONICS

B 1722

NSW • Albury **21 8399** • Bankstown Square **707 4888** • Blacktown **671 7722** • Bondi **387 1444** • Brookvale **905 0441** • Burwood **744 7299** • Campbelltown **27 2199** • Chatswood Chase **411 1955** • Chullora **642 8922** • Gore Hill **439 5311** • Gosford **25 0235** • Hornsby **477 6633** • Hurstville **580 8622** • Kotara **56 2092** • Liverpool **600 9888** • Maitland **33 7866** • Mid City Centre **221 0000** • Miranda **525 2722** • Newcastle **61 1896** • North Ryde **878 3855** • North Sydney (Greenwood Plaza) **964 9467** • Orange **618 400** • Parramatta **689 2188** • Penrith **32 3400** • Railway Square **211 3777** • Sydney City **267 9111** • Tamworth **66 1711** • Wollongong **28 3800 ACT** • Belconnen **(06) 253 1785** • Fyshwick **280 4944 VIC** • Ballarat **31 5433** • Bendigo **43 0388** • Box Hill **890 0699** • Coburg **383 4455** • Dandenong **794 9377** • East Brighton **592 2366** • Essendon **379 7444** • Frankston **783 9144** • Geelong **232 711** • Highpoint **318 6300** • Melbourne City 399 Elizabeth St **326 6088** & 246 Bourke St **639 0396** • Richmond **428 1614** • Ringwood **879 5338** • Springvale **547 0522 QLD** • Booval **282 6200** • Brisbane City **229 9377** • Buranda **391 6233** • Cairns **311 515** • Capalaba **245 2870** • Chermside **359 6255** • Maroochydore **791 800** • Mermaid Beach **785 600** • Rockhampton **27 9644** • Southport **32 9033** • Toowoomba **38 4300** • Townsville **72 5722** • Underwood **341 0844 SA** • Adelaide City **232 1200** • Elizabeth **255 6099** • Enfield **260 6088**• St Marys **277 8977** • Westlakes **235 1244 WA** • Balcatta **240 1911**• Cannington **451 8666** • Fremantle **335 9733** • Perth City **481 3261** • Midland **250 1460** • Northbridge **328 6944 TAS** • Glenorchy **732 176** • Hobart **31 0800** • Launceston **344 555 NT** • Darwin **81 1977**

STORES ACROSS AUSTRALIA AND NEW ZEALAND

***MAJOR AMATEUR STOCKIST STORES SHOWN IN RED**

AMSAT Australia

*Bill Magnusson VK3JT**

National co-ordinator
Graham Ratcliff VK5AGR
Packet: VK5AGR@VK5WI
AMSAT Australia net:
Control station VK5AGR
Bulletin normally commences at 1000 UTC, or 0900 UTC on Sunday evening depending on daylight saving and propagation. Check-ins commence 15 minutes prior to the bulletin.

Frequencies (again depending on propagation conditions):
Primary 7.064 MHz. (Usually during summer).

Secondary 3.685 MHz. (Usually during winter).

Frequencies +/– 5 kHz for QRM.
AMSAT Australia newsletter and software service
The newsletter is published monthly by Graham VK5AGR. Subscription is $25 for Australia, $30 for New Zealand and $35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

"S" Band News

Apart from microwave ovens, local subscriber TV channels and OSCAR-13 we now have a couple more signals to listen for on 2.4 GHz. Recently the DOVE (DO-17) satellite controllers turned on the 2.4 GHz beacon. It is transmitting 1200 baud telemetry and it is quite loud. I have copied it perfectly from about 5 degrees elevation on a simple ground plane antenna. The ground plane is 60 mm diameter and the antenna 29 mm long. They are soldered directly to an "N" connector which is screwed onto the pre-amp. Surprisingly this device at "broomstick" height is quite adequate for DO-17 and also for UO-11.

DOVE's beacon is on 2401.2205 MHz and UO-11's beacon is on 2401.500 MHz. Both are subject to large frequency excursions due to Doppler variation. The amount of variation is typical of LEOs on these frequencies. Both beacons usually come in about 50 kHz high and go out about 50 kHz lower than the nominal frequency. This is a bit hard to cope with by manual tuning. Next month I'll give a brief account of my efforts to auto-tune these birds. Using the 2 1/4 turn left hand helix designed for my dish feed, both these beacons pin my "S" meter for about 90 degrees of each reasonably high pass. Good stuff, these microwaves.

Last month I dealt with the HF/VHF modes in the continuing saga of the transponder modes. Here goes with the VHF/UHF modes.

Modes B and J

The "reciprocal" modes. Handy because two transceivers, one for 2 metres and the other for 70 cm, can be configured to handle both modes. Of course, if you have one of the new fangled multi-mode multi-band devices it will do this and other jobs admirably. Similarly, the one steerable antenna system will do for both modes. Most operators opt for circularly polarised Yagis on both 70 cm and 2 metres. 3JT, being made of sterner stuff, likes to poke about with oddball antennas like the helix and Lindenblads and such.

So, what's on modes B and J? The first things that come to mind are the transponders on OSCARs 10 and 13. Unfortunately, both the mode J transponders on these satellites are now out of action. OSCAR 10's on board computer was "cooked" by radiation and failure of the 70 cm transmitter on OSCAR 13 took out the mode J and mode L transponders. Mode B, however, is alive and well on both these birds.

Mode J is popular with the designers of the digital amateur radio satellites. WO-18, LO-19, FO-20, UO-22, KO-23, KO-25 and IO-26 all have mode J capability. The three most popular of these, UO-22, KO-23 and KO-25, are buzzing 24 hours a day with 9600 baud, mode J digital activity. The quieter and less cluttered environment of 70 cm is much more user friendly than 2 metres. The 2 metre band is practically unusable in many parts of the world due to man made noise and illegal radio activities.

This last unfortunate fact points the way to the future of amateur radio satellites. Popular pressure has dictated that a mode B transponder be included in the design of the new phase 3d satellite. In my opinion this will prove in time to be the least used of the transponders in the future as more operators realise the benefits of moving higher in frequency. A large slice of the world's amateur population is already cut off from mode B for the above reasons.

We already see plans afoot for the transmitters and receivers on phase 3d and a fundamental change to mode designation. We will see the introduction of modes V, U, C, X and Ka. This will lead to a rationalisation of some of the anomalies inherent in the older mode designations. It will be a welcome change (when we oldies get used to it) and it will allow newcomers to make more sense of the mode structure. The RF systems on phase 3d will not be built in the form of transponders but will be separate transmitters and receivers which can be coupled by a matrix switching arrangement into any combination or set of combinations. I'll look more closely at the frequency plans and switching arrangements planned for phase 3d next month.

*359 Williamstown Rd, Yarraville, VIC 3013
Packet: VK3JT@VK3BBS

Awards

*John Kelleher VK3DP — Federal Awards Manager**

From the DXAC comes the following information. The question of new country status for Pratas Island is back on the DXAC agenda after consultation with Dr Bolon Lim BV5AF of the Chinese Taipei Amateur Radio League. A vote on the question of DXCC country status for Pratas Island has not yet been scheduled.

By unanimous vote the ARRL DXAC passed a recommendation to delete Walvis Bay (ZS9) and Penguin Islands (ZS0, ZS1) from the active DXCC listings. They decided that these entities no longer meet the DXCC criteria following their turnover to Namibia by South Africa. This recommendation has been sent to the Awards Committee for action, along with a suggested effective date of 1 March 1994.

This action by the ARRL would now reduce the DXCC countries total to 326 countries. However, future consideration must be given to Pratas Island, and possibly the question of the Turkish enclave in Northern Cyprus.

The question of new Russian prefixes continues to perplex the amateur community. In my own small way, and when information is received at this office, I will keep members informed.

New callsign blocks have been adopted by the following:-

R1MVA-R1MVZ	Malyj Vysotskij Island
R1FJA-R1FJZ	Franz Josef Land
R1ANA-R1ANZ	Antarctica

These callsigns are intended to replace the 4J and 4K series previously used.

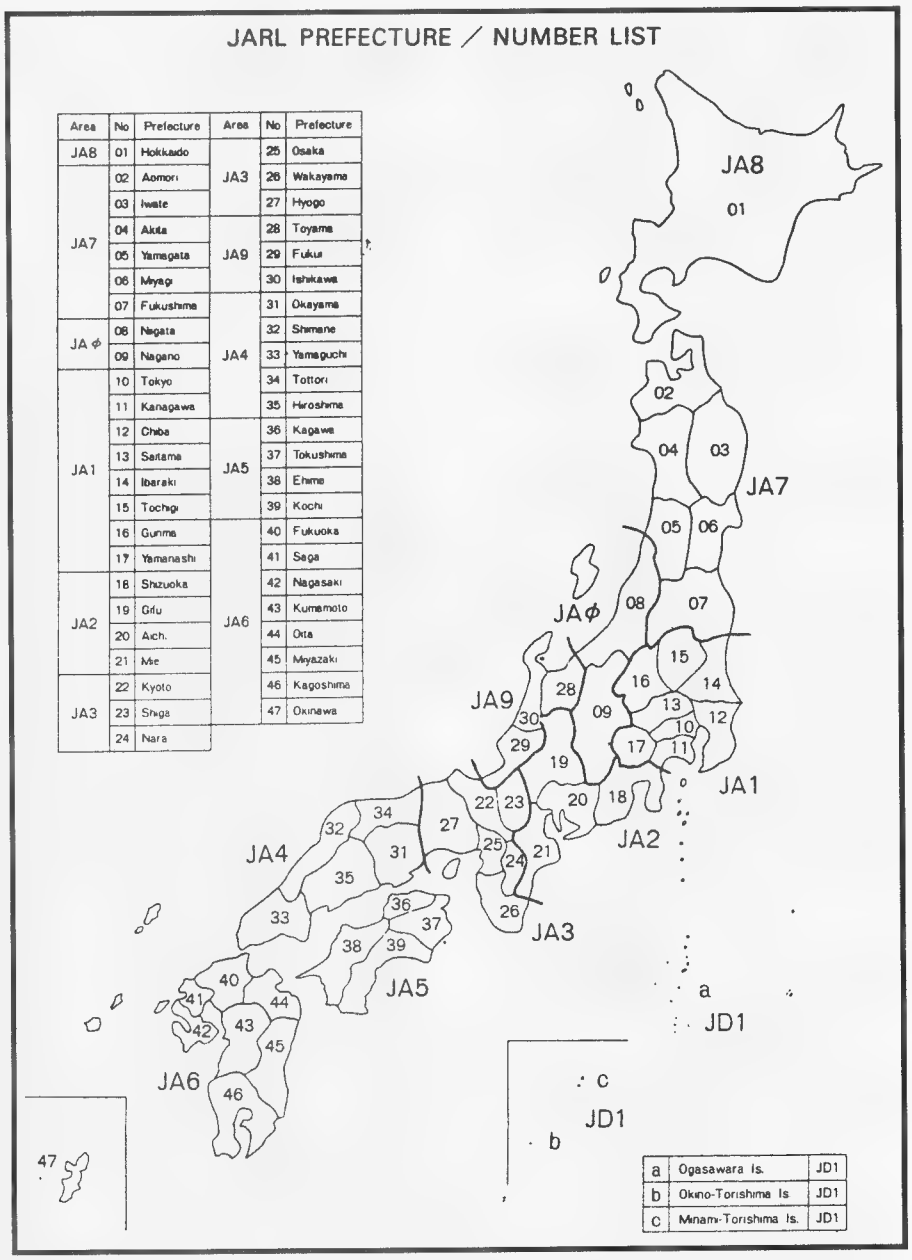
The following information was supplied by Serge Bandukevich, of the DX Club of the Republic of Belarus (formerly known as Byelorussia). The prefixes currently in use in Belarus are EU, EV and EW. The EV prefix is reserved for Memorial stations. Club station calls have suffixes beginning with W, X and Z. The number in the prefix has the following meanings:-

1 Minsk City (ex UC2A)
2 Minsk Region (ex UC2C)
3 Brest Region (ex UC2L)
4 Grodno Region (ex UC2I)
5 Not Used
6 Vitebsk Region (ex UC2W)
7 Mogilev Region (ex UC2S)
8 Gomel Region (ex UC2O)
9 Not Used
0 Visiting Amateurs

Stations in the Karelia area are now using callsigns from the following series:-
RA1NAA-RA1NZZ
RA1NA-RA1NZ
RN1NA-RN1NZ
RK1NA-RK1NZ
RK1NWA-RK1NZZ for Club stations
UN1 and possible EM1N for previously established stations.

It must be noted (more confusion) that the EM prefix has been assigned to the Ukraine, and that the series UN2 to UN0 is now allotted to Kazakhstan.

Following my suggestion that you rummage through your collection of QSL cards while conditions are relatively low, to possibly earn some awards, I have had requests to publish the Japanese (JARL) Awards program (it seems that operators have more JA cards than any other!).



Area	No	Prefecture	Area	No	Prefecture
JA8	01	Hokkaido	JA3	25	Osaka
JA7	02	Aomori		26	Wakayama
	03	Iwate		27	Hyogo
	04	Akita	JA9	28	Toyama
	05	Yamagata		29	Fukui
	06	Miyagi		30	Ishikawa
	07	Fukushima	JA4	31	Okayama
JAΦ	08	Niigata		32	Shimane
	09	Nagano		33	Yamaguchi
JA1	10	Tokyo		34	Tottori
	11	Kanagawa		35	Hiroshima
	12	Chiba	JA5	36	Kagawa
	13	Saitama		37	Tokushima
	14	Ibaraki		38	Ehime
	15	Tochigi		39	Kochi
	16	Gunma	JA6	40	Fukuoka
	17	Yamanashi		41	Saga
JA2	18	Shizuoka		42	Nagasaki
	19	Gifu		43	Kumamoto
	20	Aichi		44	Oita
	21	Mie		45	Miyazaki
JA3	22	Kyoto		46	Kagoshima
	23	Shiga		47	Okinawa
	24	Nara			

a	Ogasawara Is.	JD1
b	Okino-Torishima Is.	JD1
c	Minami-Torishima Is.	JD1

The JARL Awards Program

General Rules

1. JARL Awards will be issued to Amateur Stations and SWLs.
2. Each claim must be accompanied by a QSL card list furnished with the callsigns of stations worked/heard, dates, bands and modes of the contacts meeting the requirements of the award concerned.
3. Each list must be accompanied by a statement from the applicant's national society or from any two amateurs, certifying that the QSL cards are in the possession of the applicant, and that all QSO information is correctly listed.
4. A fee of 8 IRCs or US$4.00 will be charged per award. If the operator finds it necessary to submit QSL cards in lieu of a certified list, then sufficient return postage must be included.
5. Applicants can request three of the following four endorsements.
   (1) Bands. (Only contacts made within the same band)
   All Amateur bands. 3.8 MHz is included with 3.5 MHz.
   (2) Modes. (Only contacts made in the same mode)
   CW, AM, SSB, FM, SSTV, RTTY, ATV, FAX.
   (3) Contacts made only through Amateur Satellites.
   (4) QRP. Only contacts made through transmitters with final input of 1 (one) Watt or less.

Only contacts made with land stations (including mobile stations on a river or lake) will be acceptable. Those with maritime or aeronautical stations, however, will be acceptable for 50 MHz (100), 144 MHz (100), 435 MHz (100), 1200 MHz (10), 2400 MHz (10), 5600 MHz (10) and VU1000 awards.

Only contacts with amateur stations authorised by the administration will be acceptable. All contacts must be made within the same call area, or if no call area exists, within the same country. All correspondence must be sent to:-
Japan Amateur Radio League
Award Desk
1-14-2 Sugamo, Toshima,
Tokyo 170
JAPAN

JARL Awards and requirements

1. **All Japan Districts (AJD)** may be claimed for having contacted/heard and received a QSL card from an Amateur station located in each of the ten (1) call areas (1-0) of Japan.
2. **Worked All Japan Prefectures Award (WAJA)** may be claimed for having contacted/heard and received a QSL card from any amateur station located in each of the 47 prefectures

of Japan. Your list should be arranged in numerical order of prefectures.

3. **Japan Century Cities (JCC)** may be claimed for having contacted/heard and received a QSL card from an amateur station located in each of at least 100 different cities of Japan. JCC-200 through JCC-600 will be issued as separate awards. Your list should be arranged in order of JCC reference number.
4. **Japan Century "Guns" (JCG).** The rules are the same as for JCC, with cities replaced by "guns", which can be smaller divisions of the aforementioned prefectures.
5. **VU-1000** may be claimed for having contacted/heard and received confirmation from each of at least 1000 different amateur stations on 50 MHz, 144 MHz and/or 435 MHz. Your list should be arranged in alphabetical order of prefix, followed by the suffix. Only contacts made on and after 29 July 1977 will be acceptable.
6. **Worked All Cities Award (WACA)** may be claimed for having contacted/heard and received a QSL card from an amateur station located in each of ALL the cities of Japan that are in existence on the day that the final contact for the award is claimed. Your list should be arranged in order of JCC reference number.
7. **Worked All "Guns" Award.** Same as the rules for WACA, with cities replaced by "guns".
8. **Asian DX Award (ADXA)** may be claimed for having contacted/heard and received confirmation from an amateur station located in at least 30 Asian countries including Japan.
9. **Heard All Continents (HAC)** may be claimed for having heard and received a QSL card from an amateur station located in each of the six (6) continents.
10. **Amateur Satellite "Fuji".** Applicants should make contact with ten (10) different amateurs through the Amateur Satellite "Fuji" on CW and SSB only, and receive confirmation from those stations.

Asian Country List of prefixes for ADXA

A4 A5 A6 A7 A9 AP BV BY EP HL HS Hz JA JDI (Ogasawara) JT JY OD S2 TA UA9/0 UD UF UG UH UI UJ UL UM VS6 VU VU4 VU7 XU XW XX9 XY/XZ YA YI YK ZC4 1S 3W/XV 4S 4X/4Z 5B 7O 8Q 9K 9M2 9N 9V. UD through UM can be replaced with new prefixes.

*PO Box 2175, Caulfield Junction, VIC 3161

ar

Club Corner

Summerland Amateur Radio Club

The two major events in the Summerland Amateur Radio Club's calendar, for the remainder of this year, are the Annual Club Hamfest and the Grand Computer EXPO.

31 July is the date of the Hamfest, at the clubrooms in Richmond Hill, with bring and buy stalls, disposals, demonstrations (radio), refreshments, etc.

Keep 26 November clear for the Grand Computer EXPO, in the Lismore City Hall. Many commercial exhibits and displays of the latest in computers and electronics. Bring and buy tables, disposals, radio demonstrations and refreshments.

Also the Radio Club is planning to assist with the International Travel-Fest, in the Lismore City Hall, on 6 and 7 August. It is hoped to set up communication links with the various countries that will be involved in the Travel-Fest.

For information on these, or on any Radio Club activities, please contact Steve VK2JSM, on 626 693, Ric VK2EJV, on 895 137, or Graeme VK2GJ, on 851 336. Also check out a local BBS, VK2EA-2 or VK2YDN-1, via VK2RPL-2. The Club's postal address is PO Box 524, Lismore, NSW 2480.

VK2GJ Graeme, Publicity Officer

Radio Amateurs Old Timers Club

Office bearers and committee for the year to 30 June 30 1995 are as follows:-
President: John Fullagar VK3AVY
Vice President & Broadcast Co-ordinator: Allan Doble VK3AMD
Secretary/Treasurer: Arthur Evans VK3VQ
Committee: Bill Gronow VK3WG, Ron Fisher VK3OM, Ken Seddon VK3ACS, John Tutton VK3ZC
Magazine publisher: Stewart Day VK3ESD.

Members and interested friends are reminded that we have two 80 metre transmissions on our regular first Monday of the month. We believe these will become increasingly important as sunspot conditions continue to deteriorate.

The frequency will be 3.615 kHz plus or minus QRM. The first one is at 10 am simultaneously with the 2 metre signal. The second one is at 8.30 pm. Call backs follow each transmission. We had a gratifying number of call backs on 80 metres after our May sessions reaching VK2, 3, 5, & 7. The team who make our six transmissions possible each month would be encouraged if they could receive a more numerous response from VK4 and VK6. We have a lot of members in each of these areas and we know we put a good signal out to them. If this means you, please call back and let us know that we are not wasting the time of our broadcast team.

Allan Doble VK3AMD

Moorabbin & District Radio Club

As this issue of *Amateur Radio* goes to press the club is looking forward to a large attendance at our Hamfest at the Brentwood Secondary College in Glen Waverley on Saturday 14 May. (These publishing deadlines can be a bit unfortunate can't they?)

The Club's strong hope is that the open Home Brew competition will attract a big entry, especially as Ron Cook VK3AFW and Drew Diamond VK3XU have kindly agreed to be the judges without fear or favour.

Club members are reminded that the annual meeting and election of committee and office bearers will be held on Friday 15 July. The committee asks members NOT to assume that everything will be all right, but to give serious thought to those who should be entrusted to carry on the long tradition of the club.

Allan Doble VK3AMD

Ballarat Amateur Radio Group Inc

Ballarat Amateur Radio Group Hamvention

It has been confirmed that the annual BARG Hamvention will be held on the weekend of 29 and 30 October. Further details will be forthcoming as planning continues, including a possible venue change. However, we suggest you mark these dates on your calendar to ensure that you keep the weekend free to attend this "premier" amateur radio event.

Tony VK3DMK and his enthusiastic team are determined to surpass their previous organising achievements and are promising that this year's event will be a "winner". We'll keep you posted.

Norm D'Angri VK3BLA

Hervey Bay Amateur Radio Club Inc

The "White Whale Award — 1994"

The annual Festival of Whales, in "Whale City" Hervey Bay, is fast approaching us and the HBARC once

again is keen to show the world its city, its radio club, and all aspects of amateur radio, not only to other amateurs but to all fellow human beings.

Each year, gentle ocean giants, the Hump Back Whales, stop for approximately three months to rest and raise their young in the quiet waters of Hervey Bay. Whilst doing this they like to observe the tourists who make themselves very available on every possible floating vessel. The whales seem to have a BALL!

The callsign will be **VI4WWA** (White Whale Award). The award itself, a magnificent 10 x 8 inch glossy photograph of a rare, gentle giant of the deep playing with others, was a great achievement for the patient photographer. This rare white whale has been seen on various occasions at rest in our sheltered bay but, over the past three to four years, only few photographs have been successful. WE HAVE ONE OF THE BEST, and it can be on your shack wall!

WHEN?

The Special Event Call will be available to all amateurs and listeners world.wide for a contact between 1 August and 31 October 1994. The usual five green stamps (or $5) will apply to help with the printing and mailing costs. Please note the extended time of three months instead of one month to allow for poor propagation that may make contacts difficult.

The frequencies to be used will be as close as possible to 3.794, 7.100, 14.235, 21.250 and 28.495 MHz and Australian Novice frequencies will be used as much as possible, bands permitting.

Send applications for the award and/or QSL cards to QSL Manager, HBARC Inc, PO Box 829, Hervey Bay, QLD 4655. Please note that all enquiries are answered 100%.

Jim White VK4BX

Granite Belt Amateur Wireless Group — SE Queensland

Group member activity is centred on improving low band DX setups, with Kev (Warwick) and Paul (Tenterfield) revamping their 160 and 80 metre aerials, Doc (Dalveen) installing an 80 metre 1/4 wavelength groundplane and 40 metre 4 element vertical phase array, Karl (Pozieres), Peter and Tom (Amiens) and Alan (Stanthorpe) all hunting for 160, 80 and 40 m valve rigs. Perhaps BARCFEST will help provide some more of the older equipment this year. Naturally little valve HF equipment appears now in Hamads so, if you want a good home for that old shackwarmer, please let us know!

Recent group activities included a portable QRP CW outing and winery tour; a valve-type test/measuring equipment night which featured old CROs, Ratcliff and Marconi RF signal generators and a huge Cintel AF generator (courtesy Paul and his trailer!); and a demonstration of open wire feeder line and Beverage aerial construction by Doc. The use of open wire line for feeding quads (72 ohm) wire arrays (72, 300, 450 and 600 ohms) and vertical aerials (72 and 300 ohm) was particularly interesting, as was Doc's collection of hundreds of TOOTHBRUSH HANDLES for spreaders!!

The group is particularly interested in obtaining HEATHKIT equipment from yesteryear (SB104A, SB401, HW101, HW16, SB200, SB201, SB220, etc) and GALAXY transceivers 300, 500 and 550 series. Condition not important. Any details and information to PO Box 24, Dalveen Qld 4374 please.

Doc VK4CMY

ar

Contests

*P Nesbit VK3APN — Federal Contest Coordinator**

Contest Calendar June-July 94

Jun 4	Merv Stinson Memorial 80 m	(May 94)
Jun 4/5	RSGB Field Day CW	(May 94)
Jun 5	Portugal Day	
Jun 11/12	ANARTS RTTY Contest (VK)	(May 94)
Jun 11/12	QRP Weekend 1994	(May 94)
Jun 11/12	South American WW DX CW	
Jun 18/19	VK Novice Contest	(May 94)
Jun 18/19	All Asia CW DX Contest	(May 94)
Jun 25/26	ARRL Field Day	(May 94)
Jul 1	Canada Day CW/Phone	
Jul 2	Australasian Sprint 80 m CW	
Jul 2	NZART Memorial Contest (80 m)	
Jul 2/3	Venezuela SSB DX	
Jul 9	Australasian Sprint 80 m Phone	
Jul 9/10	IARU HF Championship	
Jul 16	18th West Australian 80 m SSB	
Jul 16	Jack Files Memorial Phone	
Jul 16	Colombian Independance Day Contest	
Jul 23	18th West Australian 80 m CW	
Jul 23	Jack Files Memorial CW	
Jul 23/24	Venezuela CW DX	
Jul 30	Waitakere Phone Sprint 80 m	
Aug 6/7	YO DX Contest	
Aug 7	Jack Files Memorial (CW)	
Aug 13/14	Worked All Europe CW	
Aug 13/14	SARTG RTTY Contest	
Aug 13/14	SEANET SSB DX Contest	
Aug 20/21	Keyman's Club of Japan (CW)	

One of the most controversial, yet least publicised, aspects of modern contesting would have to be the issue of cheating. At its lowest levels cheating comprises taking credit for a contact where you're not quite certain about the callsign, or else perhaps you had to guess the number. Maybe you suspect that the station you have been calling for the last few minutes, as part of a dogpile, really gave that number to someone else and simply got part or even all of your callsign wrong. (After all, if he couldn't copy you properly (or at all), how can you be blamed?) Other times it means making a mistake when attempting to identify the country belonging to an unusual prefix, which "just happens" to boost your multiplier total...

At the other extreme is the contester who pads his log with bogus contacts, either during the event or after it. If the contest requires serial numbers to be exchanged, he might skip the odd number here and there, usually early in the morning when others are less likely to be listening, to enable extra callsigns and multipliers to be added later. Combined with judicious jamming of other contesters who are likely to be a threat, this contester can become virtually invincible.

Fortunately, the great majority of contesters are decent, honest people who log their contacts fairly and accurately, and who would never take advantage of other contesters by falsifying contacts. Their attitude is that if they are beaten this year, they just have to try harder next time around. Most importantly, the certificates on their wall really mean something. *They are people of honour, without whom contests could, and would, not exist.*

What about log checking, I hear you say? Well, for the smaller contests, particularly those on a local or semi-local level, it is easy to cross- check contacts. If a doubtful callsign appears, and the owner of that callsign has not submitted a log, confirmation is as close as a telephone call away. At the other end of the spectrum are the large worldwide events, such as the CQWW, WPX and ARRL contests, where logs are cross-checked by computer. Disk logs are entered directly, typed ones are scanned, and handwritten ones keyed in. For these contests, as many as 30 or 40 people may be involved for much of the year. Checking is thorough, and the cheater has a high probability of being detected and disqualified.

However, in-between contests present a problem. In such events several hundred logs containing between half a

dozen and a thousand or more contacts are often checked by only one person, generally on a part-time basis. The seasoned cheater knows that it is physically impossible for our intrepid volunteer to perform much more than spot-checking and that, with some finesse, enough bogus contacts can be added to almost guarantee winning without excessive risk of being discovered.

It is bad enough that these types obtain certificates and trophies which they have not earned, and which say more about their lack of contest ability than anything else (because they have to cheat in order to get them). In practice little status is obtained from having them, because their activities are usually visible enough that few honourable amateurs would wish to visit and view the collection of certificates and trophies anyway. Worse, however, is the fact that, by obtaining these prizes unfairly, they deprive other entrants of ability and honour as their rightful recognition. With little chance of winning, at least honestly, the risk is that sooner or later these other top notch operators could drift out of contesting altogether.

Ironically, it is the entrants themselves who hold the key to keeping things honest. If YOU enter a contest and hear some mischief, spend a few minutes listening and noting your observations. In particular, write down the time, serial numbers, callsigns, and whatever else seems relevant, and advise the relevant contest manager promptly. If you can record the errant behaviour on tape, so much the better.

Remember, also, that in most contests entrants are required to sign a declaration that they have observed the "spirit of the contest", meaning that rudeness to other entrants, jamming, and other unsporting behaviour is sufficient grounds for disqualification in its own right. In such instances, a tape recording and/or the corroboration of other observers will assist the manager immeasurably, and generally enable him to act.

There are many superb contest operators in Australia and, as Federal Contest Coordinator, I intend to do everything possible to ensure they obtain the recognition to which they are entitled, and that the few "bad eggs" are weeded out. As fellow contesters, your help is needed, and will assist greatly!

Note that whereas last month's Calendar showed the Jack Files Memorial Contest as an 80 m event, it is now 160, 80, and 40 m. Thanks to VK4LW, VK5OV, VK6APK, VK6NK, ZL1AAS, ZL1BVK, *CQ, QST, and Radio Communications.* Until next month, good contesting!

Peter VK3APN

Contest Details

See also "General Rules & Definitions" published in April 1993 *Amateur Radio.*

13th South American World Wide CW

Jun 11/12, 1500z Sat to 1500z Sunday

This CW contest is sponsored by the Brazilian magazine *Antenna Electronica Popular,* and occurs on each second full weekend in June. The objective is to work as many amateurs worldwide as possible, with the emphasis on South American QSOs. Bands are 80-10, and categories are: single operator, single and all band; multioperator, single and all band; and QRP all band (max 10 W I/P). Exchange RST & serial number. Claim 0 points for QSOs with own country (multiplier credit only), 2 points for QSOs within own continent, 4 points for QSOs with other continents, and 8 points for QSOs with South America. Continents are as defined for WAC. Multipliers are total DXCC countries (including South American countries) plus total South American prefixes. The score on each band equals the QSO points for that band x the multiplier for that band. Overall score equals the total band scores. Use separate logs for each band, and mail by 31 July to: "WWSA Contest, PO Box 282, ZIP 20001-970 Rio de Janeiro, RJ — Brazil".

Canada Day CW/Phone

July 1, 0000z-2359z Friday.

Rules are the same as last year. For details, see this column in June 1993 issue of *Amateur Radio.*

9th Australasian 80 m Sprint (CW/Phone)

July 2 (CW), July 9 (Phone); 1100-1159z Saturday.

The reasoning behind this contest is that most contests are loaded with fairly complex rules, and participation, except by serious contesters, is tending to diminish. This contest, which has been organised by the **Adelaide Hills Amateur Radio Society,** and co-sponsored by the VK5/8 Division of the WIA, is designed to be quick and simple, yet challenging and fun.

The object is to make (and SWLs to hear and log) as many contacts as possible in a *1 hour period* on 80 m, working VK, ZL and P2 on 80 m. Clubs are also eligible. Frequencies are 3500-3700 kHz (CW) and 3535-3700 kHz (phone). Call "CQ Sprint", "CQ Contest" or "CQ TEST". Exchange serial numbers starting anywhere between 001 and 999, reverting to 001 if 999 is reached. Note that RS(T) is not required for this contest.

Logs should include time (UTC), callsign worked (both callsigns for SWLs), and numbers sent and received. Attach a summary sheet showing name, address, callsign, contest date, and declaration. Club/multioperator entrants must list the names and callsigns of all operators. Send to: "AHARS, PO Box 401, Blackwood, SA 5051" to be received by Friday 12 August. Endorse the envelope CW, Phone, or SWL. Logs can also be forwarded via packet to VK5AFO @ VK5WI.#ADL.#SA.AUS.OC. Certificates will be awarded to the highest scoring station (and SWL) in each VK, ZL, and P2 call area in both the CW and Phone sections. Trophies will be awarded to the outright winners of both. A certificate will also be awarded to the highest scoring Novice entrant in the CW Sprint, providing that the recipient is not entitled to another CW Sprint award. Other awards may be made at the Contest Manager's discretion. (Thanks to David Box VK5OV for this information).

NZART 80 m Memorial Contest (CW)

July 2, 0800z-1400z Saturday.

VKs are invited to join ZLs in this yearly contest to commemorate amateurs lost in World War II. It is open to single operator stations on 80 m, fixed and mobile. The contest has six operating periods, each of one hour, from 0800z-1400z.

A station may be contacted TWICE during each operating period, once on phone and once on CW, providing that such contacts are not consecutive. Exchange RS(T) plus serial number commencing at any number between 001 and 300 for the first contact. On phone, score 15 points for the first QSO with a scoring area, 14 points for the second QSO with that area, descending to 1 point for the 15th and subsequent QSOs with that area. The same scoring system is used for CW, except that QSO points remain at 5 for the 11th and subsequent QSO with that scoring area. Scoring areas are VK and ZL prefixes/areas, and DXCC countries. The rules for SWL entrants are similar except that the callsigns of the stations heard and being worked must be given, and only the cipher of the station heard is required.

Send logs and summary sheets ASAP to: "Memorial Contest, PO Box 20 332, Auckland 7, New Zealand". Nominate the category entered (Open; Phone; CW; Beginners CW; QRP; Homemade SSB), and include a points summary showing the number of QSOs and points for each VK/ZL call area worked. Certificates will be awarded to the top 3 scoring VKs. (Thanks to John Litten ZL1AAS for this information).

33rd Venezuela DX Contest

July 2/3 (SSB), July 23/24 (CW); 0000z Saturday to 2400z Sunday.

This contest celebrates Venezuela's independance. It is world-wide, ie work both YV and other stations. Bands 80-10 m. Categories are: single operator, single and all band; multioperator, single and multitransmitter.

Exchange RS(T) and serial number. Score 1 point for QSOs with own country, 3 points for QSOs with other countries in the same continent, and 5 points for QSOs with other continents. Multiplier equals YV call areas plus number of countries worked (including own country) on each band. Final score is total QSO points from all bands x sum of multipliers from each band.

Include 2 IRCs or the equivalent to cover the cost of processing and mailing any awards. Send logs by September 30 (SSB) and October 31 (CW) to: "Radio Club Venezolano, Concurso Independencia, PO Box 2285, Caracas 1010- A, Venezuela".

9th IARU HF Championship

July 9/10, 1200z Saturday to 1200z Sunday.

This contest runs on the second full weekend of July each year. Bands 160-10 m. Categories are single operator, CW only, phone only, mixed; multioperator single transmitter mixed mode only. Multioperator stations must remain on a band for at least 10 minutes at a time (exception: IARU member society HQ stations may operate simultaneously on more than one band with one transmitter on each band/mode, providing only one HQ callsign per band is used).

Exchange RS(T) and ITU zone (Note: ITU zones are NOT the same as the CQ zones used in most other contests. In our region they are P2 = 51, VK4/8 = 55, VK6 = 58, and VK1/2/3/5/7 = 59). HQ stations will send RS(T) and official society abbreviation.

Claim 1 point for QSOs within own zone or with an HQ station, 3 points for QSOs with different zone in own continent, 5 points for QSOs with different continents. Multiplier is total ITU zones plus IARU HQ stations worked on each band (note: HQ stations do not also count for zone multipliers). Final score is total QSO points from all bands x sum of multipliers from each band.

Include a dupe sheet for 500+ QSOs. Send logs postmarked by 9 August to: "IARU HQ, Box 310905, Newington, CT 06131-0905, USA". Official forms and an ITU zone/prefix/continent map can be obtained from the same address on receipt of a large SASE with 2 IRCs or equivalent. Certificates to the top scorers in each category, in each state, ITU zone, and DXCC country. Also, stations with 250+ QSOs or 50+ multipliers will receive achievement awards.

18th West Australian 80 m

July 16 (SSB), July 23 (CW); 1030-1330z Sunday.

The object of this contest is to promote contacts between VK6 and the rest of Australia and overseas, and for SWLs to hear and log as many VK6 stations as possible. All contacts must be made in the 80 m band. Call "CQ WA", "CQ WAA", or "CQ Contest", keeping CQs brief (3 x 3 max), as excessively long CQs risk disqualification! Prearranged contacts are not allowed.

VK6 and VK4 stations will send RS(T) plus Shire Code. All others should send RS(T) plus serial number commencing at 001. Stations may be worked twice on the night, ie once during 1030-1300z, and again during 1300-1330z.

VK6 stations should claim 5 pts for each QSO with VK6, 2 pts for VK1/2/3/5/8, 6 pts for VK4, 4 pts for VK7, and 10 pts for VK9/0 & overseas. Stations outside VK6 should claim 3 points per QSO. Multiply the total number of points by 2 per VK6 Shire worked. Note: VK6 stations north of the Tropic of Capricorn should apply a further multiplier of 1.3 to their overall score.

Log sheets should be headed with the date and operator's callsign, and include UTC time, callsign worked, RS(T) sent, RS(T) & shire code received, shire multiplier, and points claimed. Total the points on each page and bring the running total forward. Attach a summary sheet showing total points, Tx power, equipment and antennas used, declaration that the rules and spirit of the contest were observed, plus any comments. SWL participants score as above using the outgoing Tx score.

Address logs to "WAA Contest Committee, c/o 1 Cottrill Street, Myaree WA 6154" and posted in time to arrive not later than 5 August for both contests.

VK6 Shire Codes

AT	Albany Town	BH	Broomehill	CW	Coorow
AL	Albany	BL	Belmont	CS	Corrigin
AK	Armadale	BR	Bruce Rock	CO	Cottesloe
AM	Augusta/ Margaret River	BY	Bunbury	CK	Cranbrook
		BN	Busselton	CB	Cuballing
BA	Bassendean	CA	Canning	CU	Cue
BW	Bayswater	CL	Capel	CD	Cunderdin
BV	Beverley	CH	Carnamah	DU	Dalwallinu
BO	Boddington	CN	Carnarvon	DN	Dandaragan
BD	Boulder	CV	Chapman Valley	DP	Dardanup
BB	Boyup Brook	CI	Chittering	DK	Denmark
BG	Bridgetown/ Greenbushes	CT	Claremont	DB	Donnybrook/ Balingup
		CR	Cockburn		
BK	Brookton	CE	Collie	DR	Dowerin
BE	Broome	CG	Coolgardie	DG	Dumbleyung
DS	Dundas	MW	Mingenew	SB	Shark Bay
EF	East Fremantle	MA	Moora	SP	South Perth
EP	East Pilbara	MR	Morowa	ST	Stirling
ES	Esperance	MS	Mosman	SU	Subiaco
EH	Exmouth	MU	Mukinbudin	SW	Swan
FM	Fremantle	ME	Mullewa	TP	Tambellup
GG	Gingin	MG	Mundaring	TM	Tammin
GP	Gnowangerup	MH	Murchison	TS	Three Springs
GN	Geraldton	MY	Murray	TY	Toodyay
GM	Goomalling	MM	Mt. Magnet	TG	Trayning
GS	Gosnells	ML	Mt. Marshall	UG	Upper Gascoyne
GR	Greenough	NP	Nannup		
HC	Halls Creek	NN	Narembeen	VP	Victoria Plains
HY	Harvey	NG	Narrogin	WN	Wagin
IN	Irwin	NT	Narrogin Town	WD	Wandering
KA	Kalamunda	NL	Nedlands	WO	Wanneroo
KL	Kalgoorlie	NM	Northam	WR	Waroona
KG	Katanning	NO	Northam Town	WA	West Arthur
KN	Kellerberrin	NH	Northampton	WS	Westonia
KT	Kent	NG	Nungadin	WP	West Pilbara
KP	Kojonup	PG	Peppermint Grove	WI	Wickepin
KD	Kondinin			WU	Wiluna
KO	Koorda	PJ	Perenjori	WL	Williams
KU	Kulin	PH	Perth	WB	Wongan/Ballidu
KW	Kwinana	PY	Pingelly	WG	Woodanilling
LG	Lake Grace	PT	Plantagenet	WY	Wyalkatchem
LV	Laverton	PD	Port Hedland	WE	Wyndham/East Kimberley
LA	Leonora	QG	Quairading		
MB	Mandurah	RT	Ravensthorpe	WE	West Kimberley
MP	Manjimup	RM	Rockingham	YO	Yalgoo
MK	Meekatharra	RB	Roebourne	YN	Yilgarn
MV	Melville	SS	Sandstone	YK	York
MZ	Menzies	SJ	Serpentine/ Jarrahdale		
MD	Merredin				

(Thanks to Cliff Waterman VK6NK for this information).

Jack Files Memorial Contest

16 July (Phone), 23 July (CW); 0800-1600z Sunday.

This contest honours the late Jack Files, a long-serving VK4 WIA Councillor. The object is to encourage amateurs to work VK4s for the "Worked All Queensland" and other awards, to encourage portable/mobile activity from the less populated VK4 towns and shires, and to warm-up for the RD contest.

Categories are: Single Home; Club Fixed; Single Mobile/Portable; Club Mobile/Portable; Stations outside VK; SWL. Operate on 160, 80 and 40 m, but please avoid the DX window (1.815-1.835 MHz). No cross band. Exchanges will consist of RS(T) followed by: (for single operator stations) a serial number starting at 001 and continuing when changing bands; or (for multitransmitter stations) a serial number starting at 001 for each band; or (for VK4 entrants) a 2 letter shire code. Note: VK6 stations taking part in the West Australian 80 m contest are allowed to send their Shire Code in lieu of a serial number.

Score 1 point per QSO with non-VK6, and 2 points per QSO with VK6. Each VK4 Shire/Town Code per band counts as a

multiplier, also each prefix per band. Note that VK6 Shire Codes do not count as multipliers in this contest, only VK4. To stimulate portable/mobile activity, portable/mobile stations can also claim 1 multiplier per band for each VK4 Shire/Town from which they operate. The final score equals total points times total multiplier.

In this contest only, single operators are allowed to have a log keeper. Club stations can use multiple transmitters, providing there is only one station on each band at any one time. These transmitters need not be co-located, and may even be in different shires. Note: *Stations can be recontacted on the same band after 1 hour.* Contacts with entrants in other contests are valid, and those with VK6 stations are encouraged.

Attach a summary sheet showing the name, address and callsign of the entrant, section entered, points claimed, and a declaration that the rules and spirit of the contest were followed. Send logs to: "Rick Chilcott VK4LW, Awards Manager WIAQ, GPO Box 638, Brisbane QLD 4001" to be received by 22 August. Trophies will be awarded to the highest scorer in each section providing there are at least 5 entrants in that section. Certificates will go to the 3 highest scores in each section, the top novice, and top SWL. Participation certificates will go to all stations submitting logs.

Any VK4s who are unsure of their Shire Code should refer to the list printed in this column in the June 93 issue of *Amateur Radio,* or they can contact Rick 4LW either on (074) 98 3561 AH or else packet: VK4LW @ VK4WIA-1. (Thanks to Rick VK4LW for this information).

Waitakere Phone Sprint 80 m

July 30, 1000z-1100z Saturday.

This contest is open to all VK/ZL amateurs. Any frequency between 3535 and 3700 kHz may be used. In fairness to other amateurs, it is requested that no linear amplifiers be used in the contest. Call "CQ Sprint", and exchange serial numbers commencing at 1 and incrementing by 1 for each contact. RS is not required. Logs must show callsign of station worked, serial sent, serial received. Attach a summary sheet and send the log to "Sprint Contest Manager ZL1BVK, 14 Takapu Street, Henderson, Auckland 1208, New Zealand" to arrive by 1 September. Alternatively, logs may be sent via packet, using 3 columns only with no commas or other delimiters, to: ZL1BVK @ ZL1AB. Certificates will be awarded to the overall winner, the best score in each ZL call area, and the 3 best VK scores. (Thanks ZL1BVK).

Addendum to VK/ZL/Oceania DX Contest Results

Due to severe postal delays in Russia, several logs postmarked well before the deadline did not arrive until a couple of weeks ago. The lesson for all readers is the importance of NOT waiting until the last possible moment before posting logs, and also to use airmail. Whereas most contest managers will do everything possible to accommodate late logs when the delay is beyond the control of the entrant, once results are published and certificates sent, the book is closed. So, please add the following to last month's results (* = certificate):

Phone, Single Operator:
RA3XO, 20 m, 45 points
UA4AVN, 20 m, 171 points
Phone, Multioperator:
UZ4AYT*, 396 (20 m), 18 (15 m), 585 points
CW, Single Operator:
UA4AGP*, 20 m, 66 points
CW, Multioperator:
UZ4AYT*, 104 (20 m), 72 (15 m), 372 points. **ar**

amateur radio action

"Ηουσε αδωερτισεμεντ Π φορ Αματευρ Ραδιο Αχτιον μαγαζινε το αππεαρ ιν ΩΙΑ φουρναλ Αματευρ ΡαδιοΠ."

For subscription details to just about anywhere, phone Grant Manson on (03) 601 4222

If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.

Divisional Notes

VK2 Notes

John Robinson VK2XY

The AGM was another marathon effort again, this year, lasting seven hours. To cap it off, when called on to declare the results of the ballot for the Council elections, the Returning Officer, Peter O'Connell VK2EMU, refused to do so, gave a lengthy speech of complaint, declared the election "null and void" and then announced a new election! His actions were entirely beyond his powers, as subsequent advice has shown.

The meeting Chairman, Terry Ryeland VK2UX, read out the results and declared nine out of the 18 candidates elected. They were:
Pixie Chapple VK2KPC
Mike Corbin VK2PFQ
Roger Harrison VK2ZRH
Peter Kloppenburg VK2CPK
John Robinson VK2XY
Ian Rosser VK2XB/VK2WAG
Terry Ryeland VK2UX
Eric Van De Weyer VK2KUR
Jim Walker VK2XJW

A total of 729 votes were received (from a voting membership of 1599), arguably the biggest "turnout" ever recorded. There were 708 valid votes recorded and the results are as follows:
P. Chapple VK2KPC 363
M. Corbin VK2PFQ 520
E. Fossey VK2EFY 296
R. Harrison VK2ZRH 412
D. Horsfall VK2KFU 147
P. Jensen VK2AQJ 321
P. Jeremy VK2PJ 301
P. Kloppenburg VK2CPK 500
T. Liolio VK2ZLT 346
C. Miranda VK2TCM 255
R. Murnane VK2SKY 245
S. Pullan VK2QZ 296
J. Robinson VK2XY 427
I. Rosser VK2XB/2WAG 390
T. Ryeland VK2UX 423
E. Van De Weyer VK2KUR 524
J. Walker VK2XJW 404
R. Yorston VK2CAN 202

A group known as the "Ad Hoc Committee", who fielded a team of nine candidates for the election, have since carried on the "challenge" to the validity of the election, citing a host of what they claim to be "irregularities." Discussion among some of the successful candidates after the AGM resulted in a request for Roger Harrison VK2ZRH to put the then-known basic facts before the Division's solicitor for urgent advice. His answer was that the election was valid and the Returning Officer had no power to do what he did.

The nine members declared elected held several meetings, considered the position and then decided to form a Council, based on the Division's legal advice. Before the due date (21 days after the AGM), the following Council Executive positions were filled:
President: Mike Corbin VK2PFQ
Vice Presidents: John Robinson VK2XY, Terry Ryeland VK2UX
Secretary: Roger Harrison VK2ZRH
Treasurer: Terry Ryeland VK2UX
To cover immediate Divisional requirements, Jim Walker VK2XJW was elected Education Officer, Jim and John Robinson VK2XY were elected to cover the Parramatta Property portfolio and John retained the Security portfolio. Pixie Chapple VK2KPC was elected minutes secretary.

The Ad Hoc group, then renamed the "Concerned Amateurs Committee", latterly calling themselves the "Council of Concerned Amateurs", sought donations and paid $1500 for legal advice on material put to their solicitors by the group. Their advice was that the Returning Officer had no power to do what he did but that the Division had no directors in their opinion.

Discussions have been held with this group and further advice is being sought through the Divisional solicitor once he's been furnished with more details.

A motion at the AGM sought to have a "supplementary balance sheet" published in this issue of *Amateur Radio* showing an extraordinary loss. However, advice says that, apart from flying in the face of past (and proper) practice, the effect would be misleading to members, which is illegal. The accounts were properly presented in accordance with current accounting standards. Somewhere along the way, common sense will prevail.

VK7 Notes

"QRM" News from the Tasmanian Division

Robin Harwood VK7RH

This month, I have some limited details of the latest WICEN exercise, recently held in Tasmania. VK7 WICEN operators participated in TARGA '94 by providing communications back-up to the organisers. TARGA '94 was a world class touring class race held around Tasmania and is usually held in the last week of April every year. It traverses over 2000 km of the roads of this island State. This was the third year this event has been run here and we had 286 cars registered for TARGA this year. It is run under the auspices of CAMS and it is naturally subject to its tight regulations. It was estimated that the value of vehicles competing was in excess of 50 Million Dollars.

WICEN operators were stationed throughout the various stages. At one stage, the official TARGA communication network failed completely and WICEN had to provide total communication in addition to its other duties. This meant that the race was able to continue as scheduled.

Some of the well known names of motor sport participating in TARGA '94 were Dick Johnston, Jim Richards, Sir Jack Brabham, Kevin Bartlett along with some celebrity participants from entertainment and business.

The tour was divided into two stages. What is classed as "Touring Stages" was where the competitors travel on the open road, mixing with the general road traffic and have to obey the road rules as everybody else. The second stages were on sections of the main road system which were closed to normal traffic. There were 36 of these TARGA stages and they were from 6 to 53 km in length. Each competitor is individually timed over these measured distances and each participant is spaced at 30 second intervals. Quite often the faster vehicles would overtake slower vehicles before the end of the stage.

WICEN provided back-up communications to the TARGA officials' own system over most of the 36 racing stages of the event. Most of the activities involved tracking the vehicles through the Timing Stages. This tracking is a very critical part of the racing stages of Targa. Vehicles are recorded in lines of five, which were then relayed to the stage finish. As the vehicles proceed through the stage, they are tracked in their lines of five. If a vehicle on a previous line does not pass a WICEN operator, a process of checking for this vehicle begins. The WICEN operator advises the start that a vehicle is missing. It is the responsibility of the Targa Stage Commander to ask the next car to depart to report if he sees the missing vehicle en route. On most occasions it is located, broken down or off the road. The missing vehicle displays a card to indicate that all is OK, or another card if help is needed.

There was one example of where help was certainly needed as Barry Hill VK7BE, who was one of the WICEN Commanders in TARGA '94, reported. *"I*

was at the Finish of the Moriarty Stage of the event, with Peter Frith VK7PF. Peter was linked via 2 metre simplex. Midway through the race I just glanced up to see the flash of a red vehicle becoming airborne on completing the flying finish. The speed of the vehicle was estimated in excess of 220 km/H. The driver lost control of the vehicle, which slammed nose first into an electricity pole. I was in fact only 150 metres away and saw the base of the pole hit the high tension wires suspended from its top, which in turn pulled down another pole towards the road. The following car, not knowing of the accident, crashed through the electricity wires bought down across the road. I advised Peter VK7PF at the start of the accident and he advised the Stage start. As they had as yet not been officially advised, they continued to start new cars!

Upon this news from Peter, I advised that a power pole had been knocked out of the ground and that there were power lines all over the track. Peter immediately took this further information to the starter and the race was stopped at that stage. Through Peter, the Start asked me if any rescue vehicles were needed. From my observation, every ambulance and rescue vehicle available should be sent. These were then promptly dispatched. The driver of the crashed car, which was a bright red Ferrari, was rushed to Hobart by Air Ambulance in a critical condition, while his navigator was taken to a local hospital with a broken leg and other minor injuries. Needless to say, this expensive car was a total write-off. Further racing on the stage was cancelled."

WICEN is under the control of Tony Bedelph VK7AX, who currently is the Divisional Co-ordinator. The Northwestern Group is perhaps the most active for, just a few weeks ago, the WICEN group successfully provided full ATV coverage of the National Rowing Championships, held at Lake Barrington, near Sheffield. They were also required to provide communications through the difficult West Coast TARGA stages. It is good to hear that WICEN is again becoming increasingly active in VK7 and I'm sure that we will hear more of its activities in the days ahead. My thanks to VK7BE for the above information.

In last months's column I reported that Tom Allen VK7AL had celebrated 60 years as a ham. What the anniversary was, in reality, was 60 years continuous membership of the Tasmanian Division of the WIA. Certainly a worthy achievement all the same! The "Spirit of Tasmania" Award has been finally sent to the printers and VK7PU, the VK7 Awards Manager, should be processing the applications by now and dispatching them to the lucky recipients.

Meetings for the month of June are scheduled as follows:-

Southern Branch: 1 June at 2000 hours at Domain Centre.

Northwestern Branch: 8 June at 1930 at Penguin High School.

Northern Branch: 9 June at 1930 at Launceston Institute of TAFE, Block "C", Room 17.

If you have any news for inclusion in this column, please note the deadline for the July issue is 6 June at 52 Connaught Crescent, West Launceston, TAS 7250, or via VK7RH@VK7BBS.

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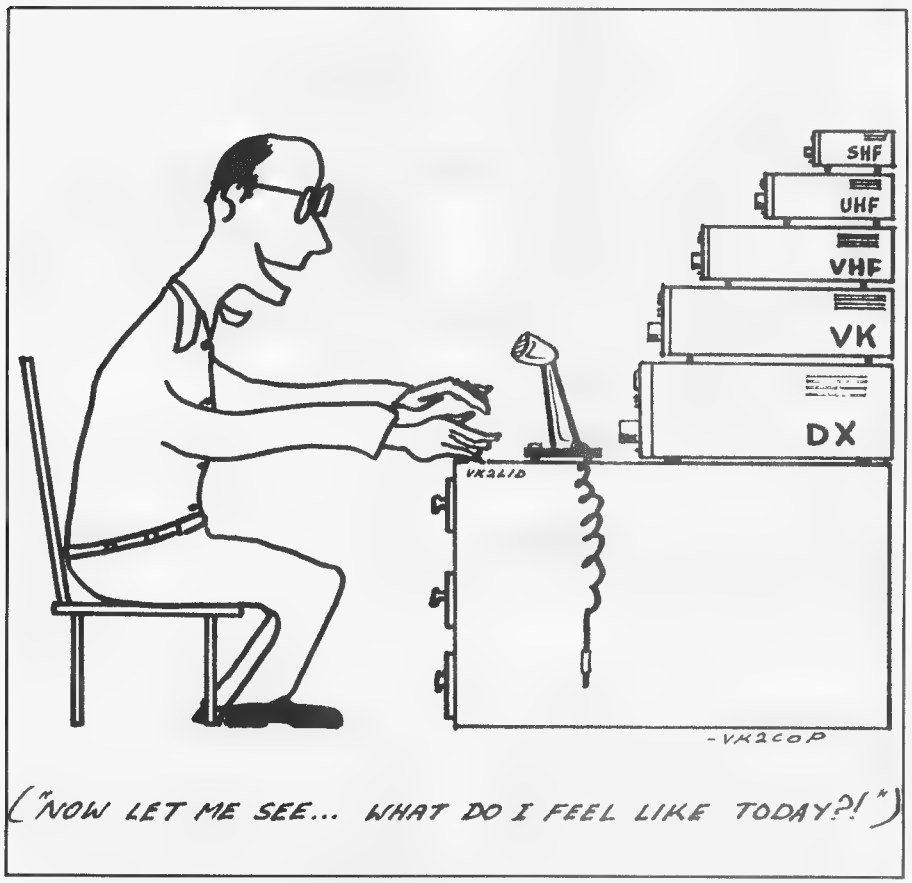

QSP News

New Federal Office Postal Address

After fifteen years, PO Box 300 Caulfield South is no longer the postal address for mail for the Federal Office and *Amateur Radio* magazine. A new post office has opened only a few doors along from the Federal Office and, as from 3 May 1994, the new postal address for the Federal Office is:
PO Box 2175
Caulfield Junction VIC 3161

WIA News

US Amateur Statistics

Statistics from the US Federal Communications Commission show that there was a total of 631,598 licensed amateurs in America as at the end of 1993.

Technician class licenses comprised the biggest slice, at 227,681, followed by General, at 126,898. There were 112,637 Advanced and 65,277 Extra class licenses. Novice licences totalled 99,105.

The biggest growth for the year was in Technicians, with an 18.5% increase, followed by extras with a 6.5% increase. Advanced grew by 2.5% and General by 1.4%. Novice licensees were essentially unchanged, said the March 24th issue of *The ARRL Letter*.

How's DX

*Stephen Pall VK2PS**

Talk about DX and propagation? Those who use the bands frequently know the answer through their own experience. The sunspot numbers are down in the vicinity of 25 and the corresponding 10 cm flux at the end of April was down to around the 81 mark.

Do you remember what the solar flux number was 12 months ago? It was an average of 115! And 24 months ago? It was an average of 158! All this decline of the solar flux and the corresponding deterioration of the propagation is caused by the sun, which is a huge glowing ball of gases at the centre of our solar system. To refresh our "schoolboy science memory", here are some facts about the sun.

1. The diameter of the sun is 865,000 miles (1,392,000 km), approximately 100 times the diameter of the earth.
2. The mass of the sun is approximately 99.8 per cent of the mass of the solar system, and about 333,000 times that of the earth.
3. The volume of the sun is 1.3 million times that of the earth so its average density is only 1/5th that of the earth.
4. As seen from the earth, the sun rotates on its axis once in 27 days. Unlike the earth, however, its rate of rotation varies with the distances from the equator. At the sun's equator the period is about 27 days, but at the poles it is greater than 30 days.
5. The distance from the sun to the earth is about 150 million kilometres. Light from the sun takes about 8 minutes and 20 seconds to reach the earth, travelling at a speed of 299,792 km per second.
6. The acceleration due to gravity at the surface of the sun is 28 times as much as on the earth. Therefore, a person on the surface of the sun would weigh 28 times as much as on the earth, if vapourisation could be avoided!
7. The temperature at the surface of the sun is 5500°C. The temperature at the centre is about 15,000,000°C and it is there that the energy of the sun is produced by nuclear process.
8. The age of the sun is about 4,600,000,000 years.
9. The sun radiates energy at the rate of 3.8×10^{28} watts. At the distance of the earth this corresponds to 1360 watts per square metre.
10. Chemical make up of the sun is about 75% hydrogen, about 24% helium and at least 70 other elements to make up the remaining 1 to 2 per cent.

Migration of the Whales — VI4WWA

The Hervey Bay Amateur Radio Club Inc will activate the special event station VI4WWA (White Whale Award) to celebrate once again the migration of the hump back whales from the cold waters of the Antarctic to the warm and quiet waters of Hervey Bay. The activity on five HF bands will start on 1 August 1994 and will close on 31 October. The uncertain and very often low propagation was a deciding factor to spread the activity over a three month period.

Frequencies to be used will be in the vicinity of 3.794, 7.100, 14.235, 21.250, and 28.495 MHz and will include Australian Novice frequencies. A special award depicting a photograph of a very rare white whale will be available for $5.00 from the club. The cost covers the printing and the posting of the award. Application for the award and QSLs (with SASE) to be sent to the QSL Manager, HBARC Inc, PO Box 829, Hervey Bay, Queensland, 4655, Australia.

International Marconi Day — VK2IMD

The 24 hour activity by the members of the Wahroonga Amateur Historical Radio Association on 23 April proved to be a great success. Contacts were made on the 10, 15, 20, 40, 80 and 160 metre bands, on HF and VHF Packet and on 2 metres. Fifteen operators made well over 700 QSOs, worked over 200 prefixes and more than 60 countries were contacted. Send your QSL card with SASE to WAHRA, PO Box 600, Wahroonga, NSW, 2076, Australia for a beautifully informative reply card.

North West Territory — VE8GO

In October last year I had a contact with Brian VE8GO who is located in Zone 2, a rare DX location. His card arrived first and shortly afterwards a long letter describing his experiences in the Canadian Arctic, the land of the midnight sun. The letter describes in detail his life in Rankin Inlet (62° 48' 33" North and 92° 05' 12" West) a small community of approximately 1700 people, 930 of whom are Inuit or, as we would say, Eskimo. The settlement is the centre of Government for the Keewatin Region of the North West Territories, and is located on the northwestern shores of Hudson Bay, very close to the Arctic Circle.

Let me quote from Brian's letter:- *"Life here is indeed a great deal different than most places on this earth. We have very few things that you have become accustomed to. We have only two stores, no roads in or out and, of course, Rankin is well above the tree line in an area of continuous permafrost. The ground remains frozen all year around. All of our buildings are built up on piles (stilts) so that the heat from the structures will not melt the frozen ground (it turns into swamp if melted). The buildings are very well insulated with walls that can be as thick as half-a-metre. Rankin is considered to be isolated — there are no roads as mentioned so the only way in and out is by air. There is a regular air service to the rest of Canada south of the 60 parallel three times a week. There is no doctor in the community but we do have a nursing station that can look after most general ailments, but if one requires more intensive treatment they are flown out to the south. Due to the weather this is often a very frightening experience, therefore we are all extra careful when doing things that have any possible dangers attached. I've been a ham radio operator for the past three years and have had a grand time telling people about life here in the North, a place that most people will never get the opportunity to see first hand. Here in Rankin there are two of us on the HF bands. VE8AJ Mike is most active on 10 and 15 meters, while I more or less hold down the fort on 17 and 20 meters. As we are the only operators on the West Coast of Hudson Bay we have developed an award that we send to any and all operators that have had the opportunity to work both of us. The "Worked All Stations Northwest Coast of Hudson Bay Award" (WASNCHB) has been presented to only a couple of dozen amateurs so far. My station is very simple, nothing fancy. The rig is an IC 751 putting about 100 watts into a "homebrew" vertical on 17 meters, and on the other bands into an R7 from Cushcraft. For those who are interested, you will find me chasing DX most of the time, but you have to consider that I, too, get chased. Being this far North makes me a DX station in my own country,"* says Brian closing his letter.

The Changing World of DXCC Countries

The ARRL Awards Committee voted unanimously on 27 April to accept an ARRL DX Advisory Committee (DXAC) recommendation to delete Walvis Bay and Penguin Islands from the DXCC List. The deletion is effective from 1 March 1994, the date when the area was incorporated into the territory of Namibia.

There are now 326 countries on the DXCC List. The ARRL recently produced a list of the many changes which have taken part in the DXCC countries list in the last eight years. The information is sorted by the date the changes became effective. The number of active countries at that time is in parentheses. The dates following the country information are the effective dates for contacts from that country.

Jan 87 (317)
3Y Peter I added (25 Jan 87)
Apr 88 (319)
P4 Aruba added (1 Jan 86)
S0 Western Sahara moved from deleted to active
May 89 (321)
4JI Malyj Vysotskij Isl added
3D2 Rotuma added.
May 90 (324)
3D2 Conway Reef added
T33 Banaba Isl added
ZS9 Walvis Bay added (1 Sep 77)
Mar 91 (322)
7O Yemen added (22 May 1990)
Y2 East Germany deleted (2 Oct 90)
4W North Yemen deleted (21 May 90)
7O South Yemen deleted (21 May 90)
Sep 91 (323)
ZSI Penguin Island added
Jan 93 (326)
4N4 Bosnia Herzegovina added (15 Oct 91)
9A Croatia added (26 Jun 91)
S5 Slovenia added (26 Jun 91)
Jun 93 (327)
A1 Abu Ail deleted(31 Mar 91)
OK Czechoslovakia deleted (31 Dec 92)
OK Czech Republic added (1 Jan 93)
OM Slovakia added (1 Jan 93)
4N5 Macedonia added (8 Sep 91)
Jan 94 (328)
E3 Eritrea moved from deleted to active (24 May 91)
Apr 94 (326)
ZSI Penguin Isl deleted (1 Mar 94)
ZS9 Walvis Bay deleted (1 Mar 94)

Oddities: P5 North Korea will be a DXCC country as soon as an accredited operation takes place from there. Romeo's P5RS7 operation is still not acceptable for DXCC.

Future DX Activity

- St Paul Island — CY9. Two groups will be active. First group from 10 to 19 June. Operators N9JCL/CY9 Scott, K0SN/CY9 Tom, AA9GZ/CY9 Bob, WC9E/CY9 Paul and WB0BX/CY9 Ken. QSL to K0SN.
- Look for Larry TZ6VV. He has planned to return to Mali in May.
- Activity in Micronesia, V6. Seven US amateurs will be active as V63AD, V63BC, V63FC, V63KW, V63SB and V63VA from 8 to 17 June on all bands using SSB, CW and RTTY modes. QSL to OKDXA, Box 88, Wellston, OK 74881, USA.
- The UK base in Antarctica, VP8GAV was heard operating on 14017 or on 14245 kHz at around 0030 UTC. QSL to GM0LVI.
- Kerguelen Island, FT5XJ was heard on 14288 kHz around 0400 UTC. QSL to F5NLL.
- 4S7/ON4IPA will be active from Sri Lanka until August. Try 14222 kHz at 1800 UTC. QSL to home call.
- Futuna Island now has its own amateur in residence, Joseph FW1DJ.
- 5R8DN is a new station situated in the Italian Embassy in Madagascar.
- Try to work BV0RI at the Rotary International Convention in Taipei, Taiwan between 12 and 15 June. QSL to the BV Bureau at PO Box 93, Taipei, Taiwan.

Interesting QSOs and QSL Information

- YS1AG — Andy — 7038 — SSB — 1144 — Apr. QSL to Andres Goens, PO Box 3061, San Salvador, Republic of El Salvador.
- HP1/DL8RBR — Andy — 14210 — SSB — 0532 — Apr. QSL to Andy Kumpfmuller, PO Box 87-2450, Panama 7, Republic of Panama or via the DL QSL Bureau.
- T95X — Slaven — 14198 — SSB — 0514 — Apr. QSL to 9A2AA Tomislav Dugec, PO Box 255, 58001, Split, Croatia.
- S59EA — Dan — 14214 — SSB — 0525 — Apr. QSL via the S5 Bureau.
- SV5TS — Vassilis — 14271 — SSB — 0604 — Apr. QSL via the Bureau.
- 9A3HK — Dado — 14010 — CW — 0629 — Apr. QSL to The Manager, PO Box 82, 41330 Novska, Croatia.
- ZS6PN — Pete — 7011 — CW — 2022 — March. QSL to P J van Niekerk, Zebrinaln 6, Breaunanda, Krugersdorp 1740, Republic of South Africa.
- YV4AKK — Steven — 7070 — SSB — 0943 — May. QSL to PO Box 345, CP, 2126 Villa De Scura, Venezuela.
- FG5FC — John — 3998 — SSB — 1013 — May. QSL to F6DZU, Hubert Loubere, Box 107, F-40605, Biscarrosse, Cidex, France.

From Here There and Everywhere

- Whilst the violent civil war is destroying Rwanda (9X), spare a thought for Hartmut 9X5HG who always had a strong signal to Australia from Kigali. I have not heard of Hartmut for many months.
- Are you visiting the United Kingdom in the European autumn? The RSGB 1994 International HF & IOTA Convention is on from 7 to 9 October in the Beaumont Centre, Old Windsor, Berkshire.
- Island chasers please note. The IOTA Directory is now available from HIDXA, Box 90, Norfolk Island, 2899, Australia.
- Joanie KA6V, well known QSL Manager for many DXpeditions, is a silent key. Our sympathy goes to her family and to her husband Gerald AA6BB, who is also well known in DX circles.
- Les 7Q7LA is going back to the UK after 5 1/2 years in Malawi. QSL to G0IAS.
- A variety of VK4 special events stations were on the air in April. VI4WGC was connected with the World Gymnastic Championships in Brisbane. VI4BEF and VI4MOO were connected with the Beef Expo in Rockhampton.
- Mal VK6LC is now working in the Northern Territory in Nhulunbuy as VK8LC. QSL to home call.
- X5BYZ is claiming to be a "new DX country" called "Srpska" and is located in Banja Luka, the Serbian part of Bosnia Herzegovina. Checking official records shows that there is no such country.
- Please note that the Brunei (V85) QSL Bureau at Box 73, Gadong has closed down. QSL direct only.
- The new address of the Taiwan (BV) QSL Bureau is CTARL, Box 73, Taipei, Taiwan, Republic of China.
- The new QSL Manager for 7Z1AB is now KN4F.
- The UN, UO, UP and UQ QSL Bureau is located at Box 112, Karaganda, 470055, Kazakhstan, CIS, Asia.
- VA3 callsigns are now being issued to stations in the Province of Ontario.
- The present Marion Island operation, ZS8MI, is closing down soon, if not already done so.
- In March the DXCC Desk of the ARRL processed 1004 applications with 75,045 cards.
- VU2DK reported in *"The DX Bulletin"* that the Indian postal workers have discovered that QSL requests often obtain IRCs and cash currency. The result has been the pilfering of and the disappearance of amateur mail. You are reminded again to use techniques which can reduce such a risk. No folded return envelopes (use envelopes of different sizes), no call signs of any sort on envelopes, no stamps (use postage labels issued by the post offices), and make sure that

the contents cannot be seen when the envelope is held up against the light. Also, seal envelopes with plastic glue, etc.

- The first RSGB IOTA Contest (1993) results show that out of 80 entries from the island stations, the first VK was VK6LC/P on OC-164 in 44th position and VK3EW (OC-001) in 68th position.
- Paul F6EXV, who operated as 9X5DX in Rwanda, has been evacuated to Burundi. Contrary to earlier reports he was able to take his equipment, including computer and logs, when he left 9X with only three minutes notice. F5FHI is with Paul. Both were heard signing with a 9Q5 callsign for a week or so, then they moved to Uganda.
- The question of the "new country" status for Pratas island (BV9) is back on the DXCA agenda. The Chinese Taipei Amateur Radio League has submitted further documentary and video evidence, including a statement from the Chinese Taipei Ministry of Foreign Affairs. Phil Weaver VS6CT has provided the DXAC with a statement confirming that, to the best of his knowledge, there are no islets or rocks above the water between Pratas and Taiwan, a distance of less than 225 statute miles. Phil is a senior marine officer in the Hong Kong Search & Rescue Authority. As the diplomats say, *"negotiations are continuing"*.
- The DXAC is expected to vote on the Mt Athos question (whether or not Mt Athos meets the present DXCC criteria) sometime in May.
- There is now a new (probably safer) QSL route for the Costa Rican island station, Cocos TI9CF and TI9JJP. QSL these stations at Office Box Acct 321 CR, 3900 NW 79th Ave, Suite 64, Miami FL 33166. The mail will be delivered by courier service to Costa Rica.
- All cards for the Crimea (callsigns beginning with UU) should go to the QSL Bureau of the Crimean Republic at PO Box 38, Simferopol, 333000, Republic of Crimea, Ukraine. Do not send "green stamps", only IRCs.
- If you listen on 14275 kHz at 1100 and 1200 UTC, and later at 1400, 1800 and 2200 UTC (provided there is propagation) you might hear a weekly DX report transmitted by the "International Amateur Radio Network". The program changes every week on Sunday.
- Francisco HK0BKX, who provided many San Andreas Island contacts for the DX fraternity, is now a silent key.
- The German "Ham Radio" gathering at Friedrichshafen in southern Germany (about 15 times as big as our own Gosford Field day) will take place from 24 to 26 June.
- Katashi Nose KH6IJ, a retired University of Hawaii physics professor and well known DXer, who obtained his first amateur licence in 1932, died recently at the age of 78.
- The new QSL manager for Bill VQ9TV is Floyd N5FG who has all the logs of the past contacts.

QSLs Received

VI9XN (5M W5KNE) — VR6ME (5M OP) — A61AD (2M WB2DND) — 4K2BY (1 M KF2KT) — VP2EE (2M KA3DBN) — YS1X (1 W3HNK) — XF4CI (4M XE1CI) — 5R8DM (3M 7K1EHK).

Thank You

Many thanks to the faithful who contributed to this column, but especially to VK2DSL, VK2KAA, VK2KCP, VK2KFU, VK4BX, VK6DX and VE8GO. Special thanks also to the following sources of information, *QRZ DX, The DX Bulletin, DX News Sheet, The W6GO/K6HHD QSL Managers List* and *IPS Radio and Space Services.*

*PO Box 93, Dural, NSW 2158

Education Notes

*Brenda Edmonds VK3KT**

The recent WIA Federal Convention took the opportunity to welcome Michael Owen back to Australia. Michael VK3KI, who has a very long association with the WIA at both Divisional and Federal level, has been overseas for several years. Michael is also Vice-President of the IARU, and has spent considerable time over the years on IARU matters.

In a short response Michael outlined some of these activities, emphasising the need for the WIA to continue its involvement in, and representation at, international meetings such as WARCs and IARU Regional Conferences. He stressed the high standing of the WIA in international spheres and the fact that many societies look to the WIA for support and leadership. He also commented on the high level of rapport between the WIA and the administrative body, the SMA, a relationship that is rare in many other countries.

The report of the address by the SMA representative at the Convention was an insert to last month's issue of *Amateur Radio.* Members should be aware that there is continuous dialogue between the WIA and the SMA over a range of administrative matters. Although the release of the revised regulations still seems to be fairly far off, the extra privileges foreshadowed in that speech have come about as a result of extensive WIA negotiations and discussions.

On the world scene, a number of other countries have recently sought information from the WIA on aspects of deregulation. The examination system is a prime example of a field in which the WIA leads the world. We have already passed detailed information to the RSGB and to the Singapore Amateur Radio Transmitting Society, and have shared procedures and question banks with NZART. We are currently preparing a package of training materials for use in another IARU initiative, the promotion of amateur radio in developing countries.

The IARU Region III Conference in Singapore in September will discuss devolvement of examinations and consider the proposal for a standard or "harmonised" set of conditions for amateur radio licences for countries within Region III. WIA delegates will contribute freely to these discussions.

Recent international agreements in Europe have led to a common licence throughout the Common Market countries, so that British or European amateurs travelling through Europe are able to use their radios without the need to obtain temporary licences in these countries. Such a scheme in Region III would greatly simplify the current reciprocal licence arrangements.

The syllabus proposed for these "harmonised" licences is that used by the UK. The theory section is basically very similar to the Australian AOCP/AOLCP syllabus, so it should be a good starting point for such discussions. The Regulations section, however, requires more extended knowledge of operating procedures and also of international bodies such as the ITU and the IARU. Whilst these topics have never been included in Australian examinations, I can see no problem with their inclusion.

As well as continually working for the benefit of its own members, the WIA has a moral obligation to contribute to the well-being and growth of the hobby world wide, and to assist countries which do not have those advantages and privileges that we take for granted.

*WIA Federal Education Co-ordinator, PO Box 445, Blackburn, VIC 3130

Over to You — Members' Opinions

All letters from members will be considered for publication, but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

QSL Practice

I refer to the article in March 1994 *Amateur Radio* on the subject of QSL procedures. This was a thought-provoking article and introduced interesting questions, but no feedback letters have appeared in response. Therefore, because I am interested in the subject, I will respond with my own ideas.

It is easy to accept that many hams enjoy collecting cards and chasing the various awards associated with them. However, as we all know, there are many facets of enjoyment related to our hobby, and QSLing is not necessarily everyone's idea of fun. If people enjoy this aspect of ham radio enough, then they should bear the costs attendant to the practice. Perhaps expanding the Q code would be helpful in dealing with this problem (some of us see it as a problem!). Therefore, I suggest one means of expanding the Q code, as follows:

QSLN — I do not collect QSL cards.

QSLO — I respond only to those cards accompanied by sufficient return postage (IRCs, green stamps, or stamped SAEs).

QSLP — Please do not QSL. Thank you.

This procedure may help reduce "rubber stamp" QSOs, QRM, and overloads on our QSL bureaux. Those genuinely interested in obtaining awards (I am sure there are many) would stand a better chance of replies. Any comments?

Bill Taylor VK6XA
68 Vahland Ave
Riverton WA 6148

WICEN Publicity

I have read with great interest the cover given to the recent bush fires in NSW in the April issue of *Amateur Radio*. The close liaison between WICEN and the SES was impressive to say the least.

As a member of the Coffs Harbour Combined Probus Club I listened to an informative address from our local SES Rescue Officer, Steven Bout.

During the question time which followed I asked whether the local SES availed themselves of the WICEN organisation but he replied that he had not heard of it, so I said I would contact WICEN.

He was genuinely pleased with my suggestion, hence this letter.

Would you please look into this matter and contact the appropriate people if you think action is warranted.

B C Fleck VK2FS
PO Box 19
Bonville NSW 2441

(A gap in WICEN local publicity? Ed)

Ross Hull Rules

I would like to lend my wholehearted support to John Martin's proposed changes to the Ross Hull VHF/UHF contest (April *Amateur Radio*). The contest is popular amongst VHF DX operators; every year there is a big surge of activity, with many stations participating "just to hand out numbers", yet this is not reflected in the number of entries. The reason has always been obvious. Like most serious VHF DX operators, my interest is working over long distances, not loads of local contacts (although we all indulge in plenty of local rag-chewing). I simply can't spend three weeks continually in the shack "working anything that moves" as John so aptly puts it. Yet I keep very aware of propagation conditions so I still work as much DX as anyone in my region.

The contest ought to reflect the objectives of VHF DX work, and reward the operator who understands propagation, has assembled a capable station and is able to exploit it. John's proposal to base the scoring on the best 100 contacts on each band during the contest period would align the contest better with these objectives, and attract more entries. Additionally, I welcome his suggestion to lengthen the contest period to 8 weeks in order to cover more of the summer DX season which would give more scope for tropospheric work through January.

Perhaps operators with modest station capability might be deterred from entering the contest under the proposed rules. I think that is unlikely. How many could realistically expect to win under the current rules? As in any contest, these stations make up the numbers, and are sought after by the serious operators. In a contest that rewards quality rather than quantity, it is more likely that the big guns will make the effort and take the time to work the modestly equipped stations. Everyone is someone else's DX!

Is it appropriate to include 6 metres in the contest? My impression is that most keen 6 m operators consider contest activity on 50 MHz a nuisance at best, yet to confine this activity to 52 MHz denies the reality that on 6 m DX lives on 50 MHz. Furthermore, the majority of contacts on this band in the summer are via sporadic-E, which is hardly a challenge. I would advocate deleting 6 m from the contest altogether.

Finally, congratulations to this years winner, yet again, Roger VK3XRS.

Charlie Gnaccarini VK3BRZ
66 Smeaton Close
Lara VIC 3212

Historical Plea

Recently the Federal Board approved my proposal to begin a series of oral histories of aspects of amateur radio with the aim of having worthwhile documentation for firstly the national centenary in 2001 and eventually the 100th anniversary of the WIA. To get this off the ground we are beginning with two projects, one on the RAAF Wireless Reserve, comparatively straightforward, and a more complex one on women in amateur radio.

These were deliberately chosen because they are good and useful topics but also because they will allow us to develop our methods and correct our mistakes. We hope to be able to hand on an operating system to our successors.

The late Bob Cunningham VK3ML has left us his history of the Wireless Reserve and we are fortunate to have the collaboration as well as the memories of several ex-members. I would like the Wireless Reserve history to be fully set down because it seemed to me to get less than fair treatment in a fairly recent RAAF history. In fairness to Bob and his cohorts that record should be set straight.

The role of women in amateur radio, from almost a curiosity to the present status, has changed dramatically. We now have the advantage of being able to seek support from ALARA. It is not so many years ago that a small YL 80 metre net was consistently jammed. It is about twenty years since VK3KT and VK3AFU were jumped on on 40 metres while operating between VK2 and VK3 by a male person who said it was just "some woman or other". It seems that there are good grounds for recording social evolution for posterity.

I will write to various organisations seeking support as the project develops. I have already been offered help by various people and groups but I will now go through official channels to Divisions, Divisional historians, ALARA and so on, particularly because of the legal requirements to protect both interviewer and interviewee. In the meantime I will be

pleased to hear from anyone who is interested in aspects of the history of amateur radio, either our first two topics or others.

One of the problems we amateurs have always had is our inability to communicate with each other. I would like to hear from other amateurs doing history projects. I know there are some out there. One of the aims of our oral history is collaboration.

The rationale for collecting oral history is clear but there are a couple of less obvious reasons. "... manipulating informants is not practical because it misfires on you. It is easier to manipulate documents. They don't come back and contradict you in person." Wendy Lowenstein. "They Stamped on Their Heads". Australia 1938, Bulletin 3 1980 p34.

And less cynically and most importantly, "Oral history ... can give back to the people who made and experienced history, through their own words, a central place". Paul Thompson. "The Voice of the Past: Oral History". Oxford University Press 1972 p2.

John Edmonds VK3AFU/ATG
Federal Historian
RMD 9320 Willowite Road
Moriac VIC 3240

Packet Identification

As a non-user of packet, I find myself in an awkward position regarding packet station identification. That is, unless one has access to packet equipment, it is not possible to identify a station transmitting packet, or any other digital mode (except CW). I have always thought it unusual that digital modes are not required, as are all other modes, to regularly identify their station in a manner readable by all.

An example is the emergence of packet stations on 7030 kHz, a long recognised international QRP CW frequency. The packet stations concerned operate 24 hours a day, thereby ruling out use of that frequency by anyone else. Because I am unable to identify the stations involved, I am unable to make a direct appeal to them regarding their use of this particular frequency.

With the international QRP day approaching (June 14) I hope that the stations concerned will stay clear of 7030 kHz, as well as the other international QRP frequencies of 1815, 3530, 14060, 21060 and 28060 kHz.

Ray Turner VK2COX
6/276 Bunnerong Road
Hillsdale NSW 2036

Loss of Spectrum

Radio amateurs generally may not know that the amateur radio service in this country has recently lost 100 MHz of spectrum. The band 2.3 to 2.4 GHz has been auctioned off for MDS pay TV.

This is a disaster, no question about it, for reasons which I will not go into at this stage. I am not making a noise just for the sake of it. Please read on.

I built my first transmitter and receiver for 2304 MHz in 1970, a varactor transmitter and crystal locked converter. I also built a four foot dish and the rigid coax to feed it. I have built several transmitters since then. In the last four months I have been working on transverters for myself and others for 2304 MHz. I have spent thousands of hours on these projects and I am not alone. Half a dozen other VK3s have put similar effort into the band, also groups in VK2, VK4 and VK5.

But there has been no mention in *Amateur Radio* magazine about the loss of the band, apart from a few words from VK3KWA. The people who are supposed to represent amateur radio in this country, the WIA Federal Body, the Federal Council, have been deathly silent on this issue. They must have known; MDS has been in the public media for months.

As I have stated before in this magazine, the safeguarding of amateur frequency allocations is top priority. It should take precedence above all other issues. But this has not happened. I have no evidence that the Federal Body has tried to save the lost 100 MHz. I could be wrong. But the band has gone.

The similarity between the 2.3 GHz situation now and the 6 m situation in 1960 is remarkable. The elected representatives of that era did nothing to try to save 6 m. It was left to me and a few other private amateurs.

The future of amateur radio is in the microwaves. Only there is the bandwidth available for the hundreds of wideband systems which will be needed for packet, ATV, satellite links, etc in the years to come. Anyone who thinks otherwise is living in the past. Already we have seen the 2 m band is nearly full, with FM nets overflowing into the narrow band segment. 70 cm is nearly as bad with an ATV uplink and an ATV simplex channel taking up a large portion of the band.

I could go on and on about this, but, essentially, we amateurs cannot afford to surrender 100 MHz at a time to other services. It is the responsibility of the Federal WIA to do everything in its power to prevent this. It doesn't matter what the band is, 2.3, 3.5, 5.6 or 10 GHz. All the spectrum is going to be required in the years to come.

The technology is now available for these bands. I have on my workbench a transverter for 2.3 GHz with a receiver noise factor of 0.6 dB (yes, point 6 dB) and output power of 300 mW. With a four foot dish these units can work 100 miles with S9 signals. Technology nearly as good is available to commercial interests, so we had better watch out.

I am sorry to take up all this space, but this is very important.

Ian Berwick VK3ALZ
107 Loongana Avenue
Glenroy VIC 3046

Packet World

*Grant Willis VK5ZWI**

Packet Keyboard Contact Facilities

From time to time I have been asked what HF packet facilities are available apart from the very busy Australian mail and bulletin forwarding channels on 7.033, 10.149, 14.105, 14.107, 14.109 and 21.109 MHz. Recently a group of HF packet operators started up a new service to provide for user activity away from the forwarding. This led to the creation of KEYnet on 14.096 MHz. The following report comes from Chris VK5HB in Caloote on the Lower Murray River.

KEYNET — HF Packet Keyboard Operators Network

Some 6 months ago, after battling on 14.107 MHz to make keyboard-keyboard connects, a group of HF "Packet Junkies" decided to rebel against the norm and form their own net. Hence "REBNET" came about on 14.096 MHz. REBNET was perhaps an unfortunate choice of name, as it may conjure up images of a group of irresponsible pirates. NO. The rebellion was essentially against the concept that packeteering was all BBSs, message passing and little or no direct people-people contact.

As more packeteers came on frequency it was decided to run several BBSs to provide for personal message exchanges if skeds were missed or propagation was not good. Initially, John VK7AD in Hobart started up with VK5HB, with VK4GRC and VK2GCN following shortly after, helping to improve the net's coverage. VK5RQ and VK4FIL also participated providing HF to VHF gateways using KAM TNC systems.

As the net progressed some categories of bulletins were included from VHF,

honouring requests from users. Consequently, much of the VKNET and AMSAT traffic is available which allows the HF only packeteers access to information which is often hard to obtain on 14.107 MHz.

Now that the net is well and truly established more people are dropping down to 14.096 MHz to have a keyboard QSO or send some personal mail. Since the system operators feel we are providing a responsible service, the name has been revised to "KEYnet". So if you are in the mood to "Let your fingers do the talking" have a look on 14.096 MHz; check who is around, or has been, by connecting to one of the nodes and make a QSO or a sked. After all **Packet is for People.**

Sending Packet Bulletins Overseas:

The REDIST Message Re-distribution Server

As a SysOp I've often been asked *"I know how to send a bulletin to everyone at a BBS, but how do I send a bulletin to everyone in xxxxxx".* xxxxxx might be a large city in Europe, a state in America or the whole of the UK. Sometimes it's to trace relatives or details for a forthcoming holiday in the area. Whatever the reason, people often want to address bulletins to different regions for various reasons.

The REDIST server for the F6FBB BBS software now solves that problem. It allows users to address personal messages to a server at a remote BBS, that will be translated into bulletins which will be forwarded using the local areas defined by the sysop.

The REDIST server is actually addressed using three different names, depending on the size of the area that you want the bulletin to cover. The three server names are LOCAL, REGION and NATION. If you want to send a bulletin to the few BBSs surrounding the remote BBS, then you would send a message to the LOCAL server. Similarly, to address messages to a larger area around the BBS you would use the REGION server and, for the entire country that the BBS is in, you would use the NATION server.

All three servers are used in the same way. In the following example just replace the "LOCAL" with "REGION" or "NATION" to use the other servers.

SP LOCAL @ BBScall (You could also use REGION or NATION here)
Test Message (Subject — put anything here)

This is the text of a test message to the LOCAL server at BBScall.

/EX or CTRL-Z

It is essential that your message is sent to the server using "SP" and not "SB". If you use SB the server will NOT process your message. "BBScall" is the callsign of the remote BBS that is running the REDIST server facility in the area you want the bulletin to be sent to.

When your message arrives at the remote BBS running the server it will be processed and re-distributed as a bulletin to "ALL @ xxxxxx" where "xxxxxx" is the translation the sysop has chosen for LOCAL, REGION or NATION, depending on which server you used.

After the server has distributed your message you will receive a reply to confirm that the distribution was successful. Remember that this reply may take a few days to get back to you if the remote BBS is in another country.

Redist support is growing around the world. Lists of BBSs running the server are available and are sent periodically to the VKNET packet bulletin designator in Australia and New Zealand. The REDIST server is (c) 1993 by Chris McMahon G6FCI and is freely available for amateur use.

Australian Packet Network News

Over the coming months I will be seeking news and information about the various packet networks scattered around the country and presenting a summary of the facilities they provide to users, as well as giving a look at how to use some of the facilities. If you would like your local or state packet network featured in *Amateur Radio,* please write a description of what makes up your network and post it to the **Packet Doctor** address below.

The Packet Doctor

This month a query was raised by an owner of a KAM KPC3 TNC with the Personal Mailbox Service Function, regarding a problem he was having with setting up the PMS forwarding to a full service BBS. PMS forwarding allows the KPC3 to automatically exchange mail with a full service BBS. The problem was that his KAM was adding a "R:" type header to any messages generated on the PMS which results in the rest of the national BBS network's "White-Pages Address Database" thinking that he was a full service BBS, not a PMS. This could have resulted in his mail being lost in his local network as none of the major BBS stations local to him would have known where to send his mail.

The solution is to make use of the KPC3 command "PBPERSON ON". This command tells the KPC3 NOT to add the BBS "R:" header. This also limits the PMS to receiving messages addressed ONLY to MYCALL or MYPBBS call. The PMS will only forward messages which are originated by the local user (thus no third party message forwarding can occur) and it will NOT add the offending "R:" line to the routing!!!

There are several other TNCs around with this PMS mailbox forwarding capacity including the PacComm Tiny-2 and MFJ. So far I have not seen these TNCs generate headers that confuse the main stream network. If there are PMS owners out there wanting to perhaps experiment with their PMSs forwarding capabilities, contact your local BBS sysop.

If you have a query that you would like to ask the Packet Doctor, why not put pen to paper and send it to:

The Packet Doctor
GPO Box 1234
Adelaide, South Australia 5001

Queries will be selected and included in future editions of Packet World.

Conclusion

Next month I will take a look at how the mail forwarding network operates to give users a better idea of how their mail is exchanged between BBSs around the world. Also coming up is an introduction to the CLIVE database and a look at finding your way around Rose and NET/ROM networks.

Cheers de Grant VK5ZWI till next month.....

*C/O GPO Box 1234, Adelaide 5001

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Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make:	Yaesu
Model:	FT-290R Mk 1
Serial Number:	3E270928
Type:	2 m transceiver
Modifications:	Internal RF preamp
Stolen:	with car from Fitzroy
Date:	29th April 1994
Make:	Kenwood
Model:	TR-851
Serial Number:	8100046
Type:	70 cm transceiver
Stolen:	with car from Fitzroy
Date:	29th April 1994

Both radios are engraved with the serial number and the callsigns VK3TRI and VK4ZTI.

Contact details: Fitzroy police on 03 419 4311 or Brian Cook VK3TRI AH on 03 754 2716

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Pounding Brass

*Stephen P Smith VK2SPS**

Remember to set aside the weekend 18-19 June for the "VK Novice Contest". I hope there is a better turn out in the CW section than we had last year. I will be on air leading up to this event on 3.525 MHz, starting from 1030 UTC, to assist any Novice who may like some extra CW training or revision.

Continuing on from last month's *Pounding Brass,* let's now focus our attention on Victoria, beginning with the "Early Bird Net" It should be noted that this net caters for the intermediate level Novices with basic grounding in CW who are striving for full call status.

The net came into being on 15 October 1983, when Colin VK3DEG overheard two Novice stations struggling through a QSO. Colin offered to assist these stations with correct Morse procedures. At the end of the QSO it was agreed to meet the next day at 0700 local for more Morse training to run for about one hour's duration. This training continued each morning for the next few weeks attracting more stations, both Novice and Full Call.

It was thus decided to establish a regular net being called the "Early Bird Net". The net meets on 3.539 MHz +/– each morning at 0700 local and runs through to about 0810 local. The Morse consists of 6 passages in all, and each passage consists of about 250 characters sent at speeds ranging from 8 wpm to 12 wpm.

Taking a closer look we have the following:

Passage No 1 sent at 8 wpm

Passage No 2 sent at 10 wpm

Passage No 3 sent by a volunteer designated by net control, so as to give practice in sending.

Passage Nos 4 & 5 sent at 10 wpm, and finally passage No 6 sent at 12 wpm. These passages are sent by VK3DEG, VK3AHU, VK3CJT and VK3NZO and the net control VK3EHZ, with each taking turns to send at different speeds.

On the conclusion of passage No 6 Colin VK3DEG sends 10, five character groups of mixed letters and numbers to give practice in instant recognition. Again, all groups are read back by volunteers.

During the morning's program, two 5 character groups are sent especially for "Short Wave Listeners". They are invited to collect 40 groups over a period, not longer than 6 months, and submit them along with $2.00 worth of stamps to Colin. If the groups are correct an award will be issued called the "Short Wave Listeners Award". There is also an "Operators Award" for sending and receiving at 10 wpm. Stars are awarded to encourage upgrading to 12 wpm and 15 wpm respectively.

If you cannot participate in the morning net, Colin runs an early evening net on 3.550 MHz +/– starting at 1900 — 1945 local at 12 wpm, run on similar guide lines to the 0700 net.

Leaving the "Early Bird Net" we will now focus our attention on the "15 WPM Net" which is run in the evenings. This net caters for the more advanced operators, with speeds ranging from 12 wpm to sometimes over 20 wpm. It is run nightly on 3.539 MHz from 0900 — 1000 UTC. Check-ins are conducted mostly by Vic VK3CQP, Colin VK3DEG, Bob VK3CAY and Jack VK3CJT.

Once check-ins are completed a passage of about three and half minutes duration is sent by one of the above operators consisting of about 200 characters including numbers and punctuation at a speed of 12 wpm. At the completion of the transmission the operator reads back the passage sent so any corrections can be made.

The next 6 — 7 passages are sent at a speed of 15 wpm, also ranging in duration from three and half to six minutes with 200 — 400 characters. Again each passage is read back so any corrections can be made. This continues until the net closure at 1000 UTC. The last passage of the evening is sent at speeds ranging from 20 wpm to 23 wpm, just to clear any cobwebs away and keep you on your toes.

On Tuesday evenings, operators who check-in are given the opportunity to send a passage of about three and half to five minute duration at the required speed of 15 wpm. At the completion of this passage the sending speed is checked by the more experienced operators, and constructive criticisms are made.

If you join this net, you will probably shake at the knees and hope you don't get selected to send something. Well, relax! You have the opportunity to decline to send if you want too but, if the opportunity arises, give it a go!

If you plan to join the Tuesday net, prepare a short passage, then you are ready in case you are selected to send. Like they say in the army, "A switched on Digger".

One of the things I like about this net is the texts of the passages being sent. The subjects are so diverse. One evening I listened to a passage on early Australian Prime Ministers, and the next on Marine Biology. You not only improve your Morse, you also increase your general knowledge. (Keep up the excellent work, gents)

To finish off this month on nets, VK3RCW is the last. This is a WIA Victorian Division 2 m CW beacon permanently on air producing random Morse at speeds of 5 wpm to 10 wpm on 144.975 MHz.

Next month we will conclude with VK3COD and move to another state. Until then, 73 de Steve VK2SPS.

**PO Box 361 Mona Vale NSW 2103*

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Spotlight on SWLing

*Robin L Harwood VK7RH**

Winter has arrived and the cold weather along with it. Autumn here was surprisingly mild and calm. The leaves didn't fall until early May. Radio conditions over the past months, however, have been atrocious, to say the least. It appears as if the sunspot minimum could pass very soon. Propagation on the higher frequencies has been poor to non-existent while the lower frequencies increasingly have become crowded as users scramble to find a clear channel or any propagation at all.

There are changes ahead for **Radio Netherlands** in Hilversum, with four language services being axed. Arabic, French, Indonesian and Portuguese will be discontinued while programming in English, Spanish and Dutch will remain. The latter will be increased and the European Services will be brought back, following representations from the Dutch expatriate community for more home base programming. To this end, RN will increasingly co-operate with the existing Dutch domestic broadcasting structures. Another aim of RN will be to place programming over existing domestic broadcasting outlets in target areas to complement the shortwave broadcasting output. It also appears that the Bonaire site could conceivably be utilised by other broadcasters when it isn't required by RN.

I have noted the appearance of **Radio for Peace International** (RFPI), which is based in Costa Rica, on 9400 kHz from 0430z onwards. Programming is in English and takes an alternative point of

view to the mainstream output of the major international outlets. I have quite often heard programming emanating from 3RRR in Melbourne over RFPI. The transmitter output is usually 1 kW on AM but they are also using a USB sender, especially on the above channel, which is much easier to hear here. RFPI is owned and operated by the University of Peace, which has campuses at Kamloops (BC) in Canada and in Singapore in addition to Costa Rica. I believe that RFPI is also hoping to have a sender in Canada but I don't have the latest status on this.

A few months back, I received a sample copy of the 2nd edition of the Southern Cross DX Club *"Receiver Guide — A Non Technical Guide to New and Second Hand Receivers".* It is compiled by Stephen Newlyn and contains some information on new receivers. However, I have found the segment devoted to secondhand receivers could be very useful to the beginner, or the more experienced listener, when contemplating acquiring a set. It is not a technical review but based on the experience of many listeners. It doesn't rubbish any set but simply states what it is capable of and what the average second hand price would be.

The price of this booklet is $3.50 postpaid anywhere in Australia and can be obtained from :-
The Southern Cross DX Club INC
GPO Box 1487
Adelaide SA 5001

There are two frequency alterations worth noting. Firstly, **Radio New Zealand International** has moved to 6100 kHz from 0800 to switch off at 1210 UTC. There are many who have been using this for the relay of the BBC World Service at 1100z and may not have known where they have gone. This channel of 6100 kHz isn't new as RNZI used to employ it when they broadcast to this area from Titahi Bay (near Wellington) some years back. It is interesting to note that they are now using a 100 kW sender situated near Lake Taupo, compared to the puny 7.5 kW sender at the former site.

The **Red Cross Broadcasting Service** (RCBS) has notified me that they now broadcast on 6165 kHz at 0700 to 0730 UTC in English. This station only broadcasts on the last Sunday of the month. RCBS programming has also been incorporated into normal Swiss Radio International output to other areas. 6165 kHz has been made available to the Red Cross by the Swiss PTT and SRI.

Well, that is all for this month. Just remember, if you have any news please contact me at the addresses below. Until next time the very best of listening and 73.

**54 Connaught Crescent, West Launceston TAS 7250*
VK7RH@VK7BBS LTN.TAS.AUS.OC

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QSP News

The "Golden Antenna" of the Town of Bad Bentheim

Every year at the German-Dutch Radio Amateur Festival (DNAT), the Town of Bad Bentheim awards the "Golden Antenna" to radio amateurs for an exceptional humanitarian deed in the field of amateur radio.

This award has been given since 1982 to radio amateurs from many countries eg Brazil, Italy, Belgium, Netherlands, Romania and the former USSR.

In 1993 the award went to the Civil Emergency Services Wing of the National Institute of Amateur Radio, Hyderabad, India for service in floods, earthquakes and other catastrophes in India over a 10 year period..

The 13th award of the "Golden Antenna" is to take place on the occasion of the 26th German-Dutch-Radio Amateur Festival, on 26 August 1994 in Bad Bentheim.

Radio amateur organisations and people who have been helped by radio amateurs are asked to propose radio amateurs for the award. Detailed documents should go by 15 June 1994 at the latest, to: Stadt Bad Bentheim, PO Box 14 52, D 48445 Bad Bentheim, Germany.

The jury awarding the "Golden Antenna" comprises the Mayor of Bad Bentheim, the Patron of the Festival, the President of IARU Region 1, as well as the Presidents of VERON, VRZA, DARC and VFDB.

Proposals should refer to the period 1 September 1992 to 31 May 1994. Individuals or groups of licensed radio amateurs are eligible. The services may have been rendered in the humanitarian field or in connection with rescue operations on the occasion of disasters and catastrophes, which must have involved amateur radio.

Repeater Link

*Will McGhie VK6UU**

FM 828-6

This is number 6 in the series of circuits for the FM 828 transceiver. I found an error in the Audio & Power Supply circuit. There is a diode shown between the Collector of TR1 and the Emitter of TR2 that is not labelled. It is D4 and should be shown as a 3.6 volt Zener diode. The polarity of the diode is correct, just change the symbol to a Zener and label it D4 3V6.

This circuit is of the buffer, divide by 2 and phase comparator. Signals applied to IC1 are the phase modulated 18 MHz (depending on TX channel) and the divided by 2 VCO. The VCO signal is buffered by TR11 and divided by 2 before being applied to IC1. IC1 has a divide by 4 circuit so the result is around 18 MHz. These two 18 MHz signals, one from the VCO and one from the reference oscillator, are phase compared and produce an error voltage on pin 8 of IC1. This error voltage is applied to the VCO to lock it on to the same frequency as the crystal reference oscillator.

The reference oscillator signal contains FM modulation. These frequency variations are copied onto the VCO. The loop response of the PLL circuit is such that fast variations, such as audio, are not removed. The end result is our audio now is an FM signal on the VCO which is then amplified up to 25 Watts.

Also contained in IC1 is a search oscillator that sweeps the VCO over about 30 MHz when the VCO is not locked to the reference crystal oscillator. This is required to make alignment easier. If the VCO unlocked frequency is way off the reference frequency then it is difficult to adjust the VCO frequency to find lock. By sweeping the VCO it is easier to find lock. Once the VCO is locked the sweep oscillator is inhibited.

Might seem like a lot of messing around, but the end result is a very clean VHF signal with no unwanted signals.

All these circuits were produced on the CAD program Draft Choice and are available via packet radio in 7 Plus format.

**21 Waterloo Cr Lesmurdie 6076 VK6UU @ VK6BBS*

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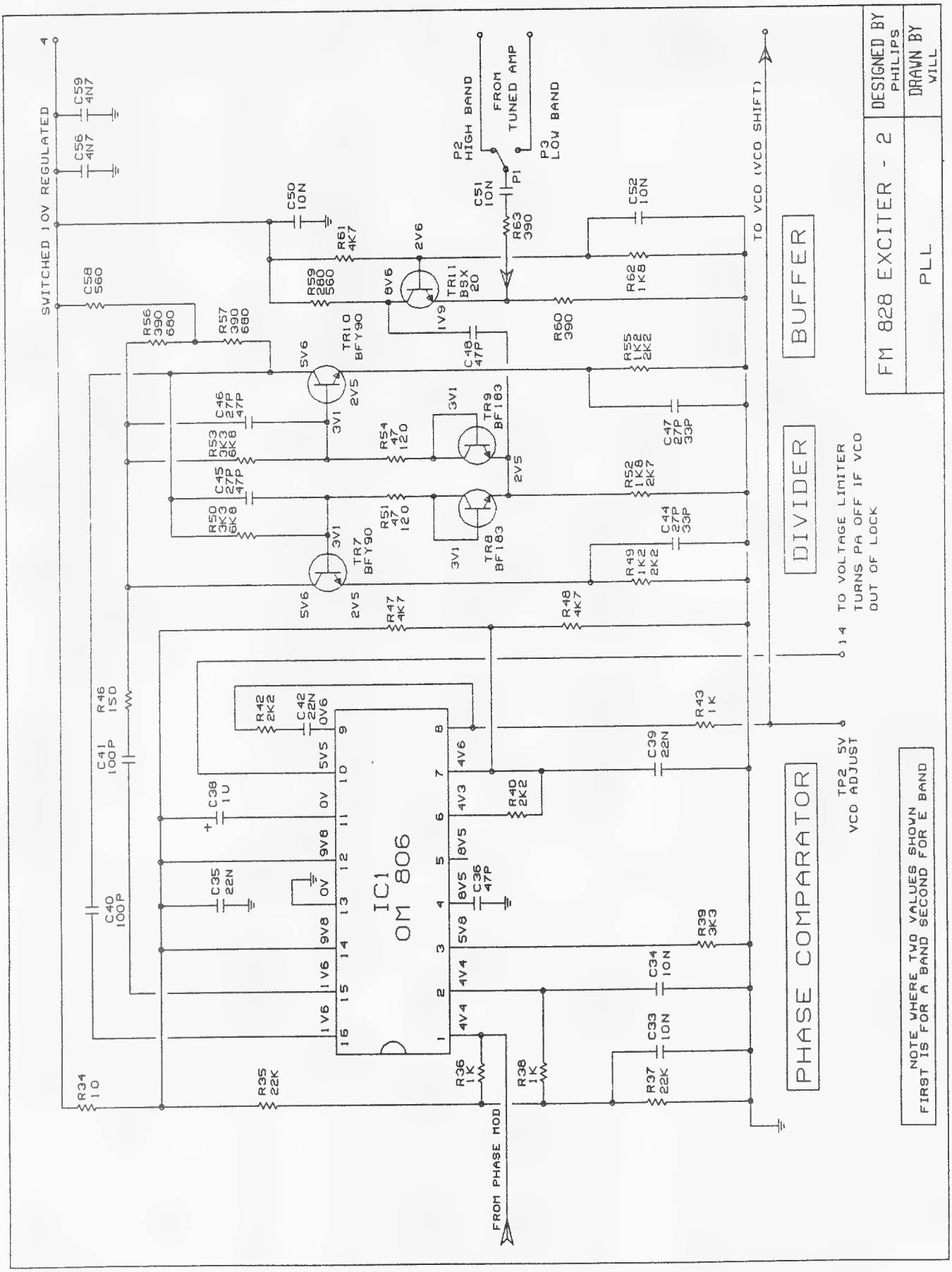
FM 828 EXCITER - 2
DESIGNED BY PHILIPS
DRAWN BY VILL
PLL
BUFFER
DIVIDER
PHASE COMPARATOR
SWITCHED 10V REGULATED
TO VCO (VCO SHIFT)
FROM TUNED AMP
P2 HIGH BAND
P3 LOW BAND
P1
IC1 OM 806
TR10 BFY90
TR11 BSX 20
TR9 BF183
TR8 BF183
TR7 BFY90
14 TO VOLTAGE LIMITER TURNS PA OFF IF VCO OUT OF LOCK
TP2 5V VCO ADJUST
FROM PHASE MOD
NOTE WHERE TWO VALUES SHOWN FIRST IS FOR A BAND SECOND FOR E BAND

Technical Correspondence

All technical correspondence from members will be considered for publication, but must be less than 300 words.

CW Versus SSB Power

At the risk of reviving an old spectre, I wish to address what I consider to be an anomaly in the regulations governing the output power levels applicable to the AOCP/AOLCP.

Specifically, I refer to the 120 watt power limit for CW transmission compared to the 400 watt PEP limit for SSB. Whilst I am aware of the historic development of these power limits, to me it seems inconsistent that I can legitimately whistle into the microphone of my SSB rig and therefore transmit a 400 watt single-tone carrier (eg to adjust the amplifier) yet, if I then choose to use CW, I must reduce my power to 120 watts. Surely it makes more sense to alter the regulations so that the 400 watt peak power limit applies regardless of transmission mode.

As for any thoughts of TVI, it must be made clear that 400 watts of CW is no more likely to cause interference than 400 watts PEP of SSB.

I don't want this to become a political issue; we have enough of those already. But neither do I want the matter quietly shelved in the "too hard" basket. Purely from a technical point of view there are times when I have the necessity to use this much power in weak-signal VHF work. I therefore request that the WIA take steps to resolve this matter to a positive outcome. What do other members think?

(The foregoing was dated 11 February 1994. After some discussion, including a comment in the May editorial, a telephone conversation between the author and myself shed more light on the matter. The following additional comments were dated 9 May 1994. Ed)

Further to my letter concerning the power limits applicable to VK amateur stations and our subsequent telephone conversation, I enclose the calculations and references in support of my case. I trust that these will assist you and the technical editors in considering the merit of my proposal.

Note that, in contrast to your comments in the May editorial, the facts are not difficult to find, nor are they unduly complicated. Moreover, my suggestion has already been adopted in the United Kingdom (see enclosed references) with the additional (and I think sensible) point that the power is measured AT THE ANTENNA, thereby compensating for transmission line losses which, at VHF and above, can be significant. At the time of my first letter to you on this subject I was unaware of the UK situation. I fortuitously came across it in "The VHF/UHF DX Book".

I am sure that after considering the matter you will agree it is worth pursuing. I don't want it to get mixed up in arguments as to whether the existing power limit of 400 watts PEP is adequate; this is a separate issue altogether.

Chas Gnaccarini VK3BRZ
66 Smeaton Close
Lara VIC 3212

(The VHF/UHF DX Book states that 400 W PEP is 6 dB (4 times) greater than 100 W CW since, in the latter case, there is no varying envelope so PEP is the same as average. Space does not permit the references mentioned to be reproduced here. Ed)

Aircraft Enhancement

Summaries of two articles on the above topic from *Amateur Radio,* February 1986 and March 1989 issues, were published in *Radio Communication,* the journal of the Radio Society of Great Britain. These seem to have attracted little attention at the time apart from a rather dismissive response suggesting forward scattering from ice particles in contrails from the jet aircraft with the signals fading as the trails dispersed.

Back in the summer of '89 I had recently moved house to a location in the North West of England which appeared to be a "hole in the ground" in terms of propagation. In between sorting out the house I would have a listen around 2 metres using an HF receiver plus MOSFET converter plus a simple turnstile crossed dipole antenna to see what if any activity I could hear (mostly nothing!).

Much to my surprise, on some days I would hear a beacon in the South East of the country. The signal would appear out of the noise quite suddenly, remain at constant strength for periods of several minutes, and then very slowly fade back into the noise. After intervals of perhaps five to ten minutes the sequence would repeat for periods of several hours. There appeared to be no audible Doppler shift, no aircraft type flutter or fading.

Having later seen the initial comments on aircraft enhancement (AE) propagation in *Rad Com* I was convinced that this was what I was hearing — the baseline to the beacon was 400 km approximately, the signal path almost coincident with the main UK airway Amber 1 running NNW up through the country and passing a few km to the east of my house and the frequency of the reappearance of the signals tied in with the aircraft I could see passing by.

Further thoughts led me to wonder why I could not hear a beacon some 230 km north of my location on an almost reciprocal bearing to the one in the South East of the country by a similar mechanism and also why did the signals appear on some days and not others.

In the meantime I have moved house again and now have some time to reconsider the AE problem. I believe that I now have an explanation to fit the observations, why AE worked for the signals from the SE only, why only on some days (despite continuing periods of settled weather) and why no flutter or Doppler is heard on the signals. A further question I am intrigued by is how big is the footprint of these signals on the ground — I hope to be in a position this summer to investigate this further.

My reason for writing is to ask if it is possible for you to send me copies of the original articles on AE and anything more recent which may have been published in your journal — nothing further on AE has appeared in the press since May '89. Has a definitive explanation been arrived at? In particular I am interested in path lengths, locations of stations involved, powers and equipment in use and time of year. The idea being to try out the observations against my explanation prior to attempting to put together an article on the subject.

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(Regular AE operators may like to respond to G8GEF. Ed)

"Choke" or "Current" Baluns

Coiled co-axial and ferrite sleeved coaxial inductors (wrongly named baluns) are an adaptation of a device used to "choke" in-phase (common mode) currents in parallel conductors without significantly impeding normal antiphase currents in the same conductors.

Those devices are receiving attention in several amateur magazines but, as usual, without quantitative supporting evidence; an omission which can cause what is stated to convey a false impression.

The theory supporting the useful properties of coaxial inductors is "primer" level and summarised in the statement :

$$Li = L1 + L2 + -2M$$

Li is the insertion inductance

L1 and L2 are the inductor self inductances
M is the mutual inductance

The term 2M is positive if the inductor currents are in phase and negative if the inductor currents are antiphase.

The proof of that statement was proven in professional laboratories last century. Proof that it also applies to coiled or ferrite sleeved coaxial cable is within the capabilities of radio amateur laboratories if the length of the cable is much less than a quarter wave at the highest operating frequency *(see appendix)*.

If the coupling factor is unity and the inductors are equal then the insertion inductance will be zero for antiphase currents and four times the inductance of one inductor for in-phase currents (0.95 is a typical coupling factor for 50 ohm coaxial cable).

There is a complication. The insertion shunt capacity is the inherent capacity of the cable for anti-phase currents and one quarter of that for in-phase currents. The capacity of RG58 and similar coax is 100 pF per metre.

The ferrite sleeved version made of 300 mm of coaxial cable has an insertion shunt capacity of 30 pF and with a suitable choice of sleeve permeability, the conductor inductance can be increased to a useful value. However, increasing conductor inductance increases the L/C ratio and the characteristic impedance. For example the inductance of 50 ohm coax 300 mm long is 0.075 microhenries and the capacity is 30 pF. The square root of the L/C ratio is 50. A sleeve will multiply that characteristic impedance (50 Ohms) by a factor determined by the permeability of the sleeve at the operating frequency.

Both versions of the device inserted in any transmission line will introduce an impedance discontinuity.

There is another factor which should be considered. In an aerial system the aerial and feeder induction fields are maintained by the transmitter generated feeder currents. Undesirable coupling, aerial to feeder and to nearby conductors, will be maintained by feeder current components but the predominant components will be anti-phase and the "choke" effect will be less than expected; certainly not enough to restore system balance.

The September '92 edition of *Radio Communications* gives details of the W2DU prototype sleeved version and the idea is further discussed in the January '93 edition of *Radio Communications.* The VK6BIL model seems to be a copy of the W2DU prototype.

I endorse the cautionary note in the January '93 *Radio Communications* article. Make sure that the insertion of either type coaxial inductors will improve performance. Check feeder and aerial currents for balance before and after and "if it ain't broke — don't fix it!"

Lindsay Lawless VK3ANJ
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Lakes Entrance VIC 3909

APPENDIX

Result of measurements on coiled coaxial model for possible use in the range 3.5 to 14 MHz.

Dimensions:
9 turns RG58 on 110 mm former.
Length of coil: 50 mm
Calculated self inductance: 9.1 μH.

Measured parameters:
Inner conductor self inductance: 11.8 μH
Outer conductor self inductance: 11.0 μH
Coupling factor: 0.94
Inter conductor capacity: 343 pF

Insertion Inductance (Li):
In-phase currents: 44 μH
anti-phase currents: 2 μH

Insertion capacity:
In-phase currents: 85 pF
anti-phase currents: 343 pF

Insertion inductance calculated from measured parameters:
Li (in-phase currents): 43.3 μH
Li (anti-phase currents): 2.3 μH

The measurements were made within the range 2 to 12 MHz. The total length of coax was 3.4 metres; electrical length 4.5 metres, ie a quarter wave at 17 MHz.

I intend to do another set of measurements with a model suitable for 21 to 30 MHz to determine the effect of insertion in transmission lines. Space to accommodate suitable line lengths is a problem and it might be necessary to use 6 or 2 metre models. Also sleeved coaxial models await an opportunity.

VHF/UHF — An Expanding World

*Eric Jamieson VK5LP**

All times are UTC

Auroral Opening

On 16/4 the south-eastern portion of Australia enjoyed enhanced conditions resulting from an aurora. I was not surprised that one had occurred as on the previous day, while returning from a trip to Adelaide, I drew my wife's attention to the unmistakable pattern of rising rays of light in the south-eastern sky, commenting, "Unless I am very mistaken, the bands will be open tomorrow afternoon." And they were!

From Meningie I managed fourteen SSB contacts on six and two metres to VK3, 5 and 7. Signals varied in signal strength and readability but some contacts were S9. I also heard VK1VP, VK1RX and VK1BG. The auroral conditions lasted from 0630 to around 0900. Beam headings were around 170-180° for most stations. I tried 70 cm with several stations but no contacts were made, the band did not seem to be alive with the customary background noise that accompanies an aurora.

At 0843 **Roger VK5NY** worked ZL3TY on 50 MHz with reports 5x3 each way. **Charlie VK3BRZ** said that if this contact was via aurora then it would be one of the longest from Australia as it exceeded the normally accepted auroral maximum distance of about 2000 km. I discussed the matter with Roger but he was not sure of the mode and said that he had moved his beam east to establish the contact. There remains the possibility that it was an Es contact. Roger said the ZL had called CQ for some time but there were no other takers.

Six metres

Ron VK4BRG sent a BBS message to me via **Gary VK5ZK** which indicated that six metres opened between VK4 and KH6 on 21/4 with Brisbane stations working KH6HH at 0440. Wally VK4DO worked the KH6 at 0450 and Ron worked him at 0534, signals were 5x9 each way. At this latter time there was a good opening to JA. Ron said that propagation to both areas was via TEP.

Emil Pocock W3EP in his "World Above 50 MHz" in *QST* has been providing a series of articles relating to 50 MHz propagation and, in particular, in-depth consideration to Sporadic-E. I have been following these articles with considerable interest and consider they should be recommended reading for those using 50 MHz. The articles have been re-printed in the *UKSMG Newsletter.*

In the May 1994 issue of *QST* Emil heads his article "Sporadic-E Mapping" and refers to the MUF reaching 144 MHz when 50 MHz contacts shorten to less than 700 km, thus opening the possibility for two metre contacts over 2000-km-plus paths.

The analysis of finding a mid-point for a short six metre path and a consequent mid-point for a 2000 km two metre path is contained in a handy MUF chart included in an article "Sporadic-E

Propagation at VHF" in *QST* for April 1988, pages 33 to 39.

For those living in the US there is a computer mapping programme by Jim Roop K0BI called ES-PROP 1.1 and this relates to an outline map of the US and adjacent parts of Mexico and Canada. As the programme runs on an IBM (MS-DOS) compatible PC, those keenly interested in Es propagation might like to contact Jim Roop K0BI, PO Box 255, Allegan, MI, 49010, to ascertain whether it is possible to adapt it to Australian circumstances as our continent and the USA are comparable in size.

Two Metres and Above

Roger VK5NY reported that on 21/4 he worked stations in VK3 on 144 and 432. On 22/4 the bands 144, 432 and 1296 MHz were open during the day, working VK6AS Esperance and VK6WG Albany. Roger pointed out that it was a classic example how you should not pre-suppose certain conditions exist. He said the strongest signals were on 432, not 144, in this case particularly to VK6WG. Signals were 5x2/3 on 144, 5x8 on 432 and 5x2 on 1296.

Also on 22/4 at 2330 Roger worked **Chris VK5MC** at Hatherleigh on 10 GHz with signals 5x2 and a path distance of 270 km. Roger said contact could not be made at night but the next morning the contact was made, first from the hills north of Mount Magnificent, then to a location in a paddock near his home. In daylight he was able to observe that a stand of gum trees had blocked his night path.

From the reports which arrive on my desk, it seems quite remarkable the terrain over which various VK5 10 GHz contacts are being accomplished. If the current level of activity can be maintained it must only be a matter of time before the 1880 km path from Adelaide to Albany is bridged and that should set the world talking!

Microwave Contests

Doug VK4OE forwarded details of an article in *Radio Communication* for April 1994 which outlines details of activities of the RSGB Microwave Committee which relate to their Summer and Winter Accumulatives. It is pointed out that technology has moved a long way in the last few years. No longer is it line-of-site, mountain-top to mountain-top only contacts which are made on 10 GHz, but paths of several hundred km are now covered on a daily basis.

The Summer Cumulatives are two separate days organised each month between April and October — one day each for 10 GHz and 24 GHz. The Winter Accumulatives encourage operation on any band from 2.3 GHz upwards. The events are organised both as contests and a way of increasing activity, with a mix of portable and home locations.

In summer there are 70 or more UK stations taking part, plus a handful of continentals. The best DX in 1993 would do credit to the lower frequency bands, with G3FYX/p working HB9MIN/p at a distance of 780 km. Operation on 10 GHz during the cumulatives is now virtually all narrowband SSB/CW. 24 GHz is much less developed and is used more to try new equipment and paths and to investigate the vagaries of propagation. Up to now operation on this band has been with simple wideband equipment, but increasing numbers of people are now using narrowband equipment.

Briefly, this is how a typical microwave contact takes place. A CQ call is made on the microwave talk-back calling channel of 144.175 or occasionally 432.350 MHz and, when contact is established, the stations QSY to a working frequency on the 144 or 432 MHz bands.

Location details are exchanged using either the IARU locator, NGR or Lat/Long, and the dish headings either computed or obtained from a pre-computed table of sites. With antenna beamwidths often as small as 2° or 3° accurate headings are vital and the variance between true north and magnetic north must be taken into account. Both stations set their dishes accordingly, subject of course to being able to keep the dish aligned on a windy moor!

One station, normally the one with the greater transmit power, will send a carrier or CW beacon while the other listens and tweaks the dish in both azimuth and elevation for best signal. The reverse then takes place. Finally, the contest details are exchanged. When signals are weak it can take an hour or more to complete the exchange. It is also becoming frequent for the contact to be directly established on 10 GHz by "tail-ending" another QSO.

Equipment used varies widely, some using the G3WDG transverter modules plus a G4DDK local oscillator source, with 50 to 300 mW output, to a 45 cm dish with a prime mover such as the FT290 or IC202 which lend themselves to backpacking to a hilltop. The more ambitious portables and many home stations may have several watts to a 1.2 m dish, but the choice of site can be more important than the depth of your wallet!

Although derived from a European source, the above information is relevant to Australia, as more operators move to the 10 GHz band. If the inclusion of the above does no more than motivate a few more amateurs to explore the microwaves then the space used will have been worthwhile.

From the UK

Ted Collins G4UPS said that Costas SV1DH worked stations in 7Q7 and A22 for the first Europe/Africa opening for 1994 on 24 and 26/2. The 7Q7SIX beacon was very strong during the opening.

Another first-for-the-year opening was on 17/3 when Peter PY5CC operating as PY0FM from Fernando de Noronha reported that at 1523 he was hearing the CT0WW beacon.

Ted reports two new beacons in Poland, SR5SIX, 50.023, Warsaw, KO02; SR6SIX, 50.028, Wolow, JO81. Also, the Namibia beacon V51VHF on 50.018 is still off air and likely to be for some time.

Equinoxial six metre activity from Europe almost non-existent. A number of beacons audible on 28 MHz. Auroral activity on 7/3 and 9/3. Ted is maintaining his daily CW propagation skeds with G3CCH and SM7AED, most days result in contacts but little else to work.

Portable Operation

Doug VK4OE writes that he proposes operating portable from a hilltop site north-west of Brisbane, exact site unknown at writing, and using 144, 432 and 1296 MHz bands on Saturday evening of 25/6 and Sunday morning on 26/6. He will be primarily attempting aircraft enhancement contacts on 1296 MHz but, as always, he will be interested in VHF/UHF DX propagation and QSOs in any direction. Normal calling frequencies plus "decimal one-one-five" for each band if necessary. HF liaison on 7070 and 14340 kHz ± QRM, cellular telephone 018 191 066. He will take the same gear as used at Dorrigo last January and hopes to stir up some interest in longer-than-usual VHF/UHF contacts.

Also from Doug is a report from **Peter VK4APG** concerning two metre Es openings. On 9/4 during a strong short skip opening (Brisbane to VK2s), at 2157 VK4APG worked ZL1IU and at 2255 ZL3NE. At 2200 VK4VV worked ZL1GSN and ZL4AAA. On 17/4 at 2309 another brief opening occurred when VK4VV worked ZL4AAA with an incomplete contact VK4APG to ZL4AAA. A similar strong six metre opening occurred at the same time. When referring to the contacts, Peter made the comment that, "It takes calls to get results" so he was repaid for the time spent calling CQ at random intervals.

Closure

Got to rush off to hospital for another round of pressure sore. Sorry, but the notes must finish here.

73 from The Voice by the Lake

**PO Box 169 Meningie SA 5264*

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

T O	SUTTIE	VK2AST
E L	LLOYD	VK2ZV
C (Chris)	BELL	VK3DGN
V E (Vaughan)	MARSHALL	VK3UK

Vaughan Marshall VK3UK

It is with regret we record the passing on 3 May 1994 of Vaughan Edward Marshall aged 83. Vaughan was a leading light in WIA Victoria affairs before World War II, serving on council and *Amateur Radio* magazine committee, and WIA Federal President in 1946.

The January 1939 Black Friday bushfire disaster saw him among those who took to the field to provide emergency communications. He was commanding officer of the WIA sponsored Wireless Reserve and, with Bob Cunningham VK3ML (SK), founded the group in recognition of the enormous potential role for radio amateurs in emergency and civil defence communications.

The Wireless Reserve provided 120 trained and skilled radio amateurs for call up in September 1939 and formed the basis of the RAAF radio and radar war effort. During war service Vaughan was Director of Radio Services in the RAAF. He was in charge of installations in the Pacific which were later to prove of great benefit to the United States Air Force. Those interested further in the era will find it useful to read "A Saga of Achievement, the RAAF Radio Story" written by Group Captain E R Hall, Bonall Publishing 1978.

Vaughan Marshall was described by his peers as being a good administrator with great capacity, good technical knowledge, and able to deal with problems and people in a considerate manner. He applied these attributes both during his time in serving the WIA, the RAAF, and as Director of Planning for Petersville Australia.

On behalf of the WIA and members I extend sincere sympathy to Vaughan's widow, Nel, their children Graham VK3GVM, daughter Pam, and to his surviving contemporaries in the amateur radio fraternity.

Jim Linton VK3PC
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WIA News

New Regulations to be Finalised by Year's End?

The long-awaited new regulations for the amateur radio service in Australia look like being completed by the end of the year.

This was the hope expressed by Spectrum Management Agency representative Peter Stackpole who was the guest speaker at the WIA Federal Annual Convention dinner on 30 April. He was standing in for the acting Spectrum Manager, Christine Goode, who sent her apologies.

Mr Stackpole explained the delay in introducing the new regulations had been caused primarily by the restructuring of the former Department of Transport and Communications, now the SMA.

The new regulations were first publicly foreshadowed nearly 18 months ago. The main aim of redrafting the regulations has been to simplify the present licensing conditions.

The new regulations are still expected to include the introduction of a no-code Novice licence and review of the frequency allocations and privileges for the Limited, Combined and Novice Licences.

A further bit of cautious good news for amateurs was delivered by Mr Stackpole: the SMA has proposed an electromagnetic compatibility (EMC) framework for Australia.

This means that there will be mandatory standards introduced for all electrical and electronic equipment that emits radio frequency energy which is not part of its purpose. Examples include electric motor driven appliances such as drills and food processors, and other equipment such as personal computers.

The electromagnetic compatibility requirements are planned to be effected from January 1996, but will not be retrospective. That is, equipment manufactured before that date will not have to comply.

The EMC framework is proposed to apply for all equipment manufactured in or imported into Australia. The SMA will also work to develop immunity standards for equipment likely to be affected by electromagnetic interference. This will apply to equipment such as domestic television receivers and video recorders, for example.

Mr Stackpole also reminded WIA delegates and guests at the dinner about the SMA decision to toughen interference regulations. The SMA plans to include in the regulations new provisions relating to the operation of amateur stations in regards to interference. He said these provisions are being proposed to encourage radio amateurs to take more responsibility in the resolution of interference caused by their transmissions.

The philosophy behind the SMA's thinking is that radio amateurs and those suffering interference must work together to resolve interference problems. In a cautionary note for the amateur service, Mr Stackpole warned that, just because an amateur transmission is spectrally clean, will not in the future be a defence in cases where interference is being suffered by a neighbour. Sheer field strength can be a contributory cause to interference and this is likely to become an issue.

Guidelines for resolving interference problems will be developed.

Of necessity, this summary of important points from Mr Stackpole's speech has been brief. WIA Federal is actively considering many of the points raised and we will bring you further information as it comes to hand.

HF PREDICTIONS

Evan Jarman VK3ANI

The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for five of the bands between 7 and 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1 μV (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 μV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50 μV at the receiver's input and the S-meter scale is 6 dB per S-point.

μV in 50 ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	-8
0.20	S1	-14

The tables are generated by the GRAPH-DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

VK EAST The major part of NSW and Queensland.

VK SOUTH Southern-NSW, VK3, VK5 and VK7.

VK WEST The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The sunspot number used in these calculations is 30.5. The predicted value for July 27.6.

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VK SOUTH — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	16.6	15	12.5	3	21	11	0	-16
2	17.2	16	12.9	4	22	13	2	-13
3	17.3	16	13.0	8	23	14	3	-12
4	17.1	17	12.8	15	24	14	3	-13
5	15.7	20	11.9	27	24	11	-3	23
6	13.4	24	10.1	39	20	0	19	
7	11.3	27	8.6	41	11	-15	.	.
8	9.6	29	7.3	40	0	-34		
9	8.5	32	6.4	39	12			
10	7.7	33	5.8	37	24			
11	7.4	33	5.5	35	-29			
12	7.4	33	5.5	35	-28	.		
13	7.5	33	5.5	36	27		.	.
14	7.5	33	5.5	36	-26			
15	7.6	33	5.7	36	-25			
16	7.0	34	5.4	34	-33			
17	6.8	35	5.3	33	-37			
18	7.1	34	5.5	34	-33			.
19	7.0	33	5.4	33	35			.
20	8.0	26	6.3	29	-18	.		
21	10.3	20	8.0	23	2	-25	.	
22	12.6	17	9.7	14	12	-5	24	
23	14.5	16	11.1	8	17	4	10	-32
24	15.6	16	11.8	4	19	8	-4	-23

VK WEST — SOUTH PACIFIC

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	19.2	12	14.5	-23	17	14	8	-2
2	20.4	12	15.4	24	18	16	10	1
3	21.1	12	16.4	-22	19	17	12	3
4	21.3	13	15.9	-16	21	19	13	4
5	20.9	14	15.7	-3	24	20	14	3
6	18.7	18	14.1	18	27	19	10	3
7	15.8	22	11.9	32	26	13	1	17
8	13.3	25	10.0	39	22	4	-13	-36
9	11.3	29	8.5	41	15	-7	29	
10	9.9	31	7.4	41	7	-20		
11	9.3	32	6.9	41	3	27		
12	8.9	33	6.6	41	0	32		..
13	8.9	33	6.6	41	0	32		.
14	9.0	33	6.6	41	1	31		.
15	9.0	33	6.8	41	1	-30		
16	9.2	33	6.8	41	2	28		
17	8.5	34	6.5	40	2	-37		.
18	8.2	34	6.4	39	5			
19	8.6	33	6.6	40	-1	35		..
20	8.5	27	6.6	31	3	-35	.	.
21	9.8	21	7.2	21	4	-19		
22	12.7	18	9.8	10	14	-1	-16	-39
23	15.6	15	11.9	-3	17	9	-2	-18
24	17.9	13	13.6	-17	17	13	5	-7

VK EAST — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.5	13	6.8	9	-4	-29	...	...
2	7.8	5	6.0	1	-5	-29	...	...
3	7.6	-2	5.8	-6	-6	-29	..	...
4	10.2	2	7.9	-20	2	-10	-26	...
5	14.9	7	11.5	..	7	3	-4	-17
6	17.7	7	13.8	...	7	7	2	-8
7	16.5	7	12.4	...	7	5	0	-11
8	14.2	7	10.7	-34	7	2	-7	-21
9	11.7	5	8.8	-23	5	-5	-18	-38
10	9.9	4	7.4	-12	1	-14	-32	...
11	8.6	4	6.4	-3	-3	-24	..	...
12	8.2	10	6.1	5	-5	-30	.	...
13	8.2	16	6.1	15	-5	-32	..	...
14	8.3	25	6.1	27	-4	-35	...	...
15	8.1	27	6.2	30	-7	...	...	...
16	7.8	30	6.0	33	-11	...	...	..
17	7.8	31	6.0	34	-11	...	...	...
18	7.9	30	6.0	34	-9	..	...	...
19	8.0	31	6.1	34	-8	.	...	...
20	7.9	31	6.1	34	-9	...	..	...
21	8.2	30	6.3	35	-7	...	..	...
22	8.1	30	6.3	34	-8	...	...	...
23	7.7	24	6.0	26	-11	...	..	...
24	7.6	17	6.0	16	-11	...	..	...

VK SOUTH — AFRICA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	8.5	23	6.5	25	-1	-30	...	...
2	8.3	17	6.4	16	-3	-30	...	...
3	10.9	16	8.1	9	8	-8	-26	...
4	15.6	14	12.1	-5	16	8	-2	-17
5	17.3	11	14.0	-26	13	9	2	-9
6	18.6	10	15.0	-36	12	10	5	-5
7	17.6	9	14.1	-36	11	8	2	-8
8	15.7	9	12.5	-28	10	5	-2	-16
9	13.4	9	10.6	-19	8	0	-12	-29
10	11.0	8	8.6	-10	4	-10	-27	.
11	9.2	8	7.2	0	-2	-22	..	..
12	8.1	10	6.3	7	-8	-35	.	..
13	7.8	15	6.1	14	-11	...	.	...
14	7.8	24	6.0	26	-12	...	..	...
15	8.0	27	6.1	30	-11	...	..	...
16	8.2	29	6.2	33	-9	. .	...	...
17	8.2	30	6.3	34	-8	...	. . ..	
18	8.3	30	6.4	35	-8	..	...	...
19	8.2	30	6.4	34	-9	..	..	...
20	7.8	30	6.1	33	-13	...	.	..
21	7.8	30	6.1	33	-13	...	..	..
22	8.6	29	6.6	35	-5	-39	.	..
23	8.1	30	6.3	35	-8	...	..	..
24	8.1	27	6.3	30	-9	...	...	...

VK WEST — AFRICA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	7.8	28	6.0	-9	..	.		.
2	7.5	19	5.8	-11	..	.		
3	10.3	15	7.7	5	-13	-33		
4	15.3	14	11.8	15	7	3	-19	-37
5	17.8	11	13.6	13	10	4	-7	21
6	19.0	10	14.4	12	11	6	-4	-16
7	19.5	9	14.6	11	11	6	-3	-14
8	18.6	9	13.9	10	9	4	-5	18
9	16.7	9	12.5	10	7	0	-12	-27
10	14.4	10	10.8	10	2	-8	-24	.
11	11.9	10	8.9	7	-6	-21	.	
12	9.9	12	7.4	2	-17	-38	.	
13	8.6	17	6.4	-4	-31			
14	8.3	25	6.2	6	-39			
15	8.3	28	6.2	-6				.
16	8.4	30	6.2	-6				
17	8.4	31	6.3	-5				.
18	8.6	31	6.4	-4	-8	.		
19	8.7	31	6.5	-2	-36			
20	8.6	31	6.5	-3	-37		.	
21	8.1	32	6.2	-8				.
22	8.0	32	6.1	-10		.		.
23	9.1	31	6.7	0	-31		.	
24	8.4	32	6.4	-4	-39	..	. .	

VK EAST — ASIA

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	22.0	12	16.7	16	17	13	6	-3
2	21.7	12	16.5	15	16	13	6	-3
3	21.8	12	16.6	14	16	13	6	-3
4	22.4	12	17.0	15	17	14	7	-1
5	22.8	13	17.4	17	18	15	8	0
6	21.9	13	16.8	19	19	15	6	-3
7	20.0	14	15.3	21	18	11	1	-12
8	17.4	17	13.2	24	14	4	-11	-28
9	14.9	20	11.4	23	7	-9	-30	...
10	12.7	23	9.7	15	-6	-28	...	...
11	11.6	24	8.8	10	-16	..	..	.
12	11.1	25	8.4	7	-22	...	..	...
13	10.7	26	8.1	3	-27	...	..	...
14	10.5	26	8.0	2	-30	. .	. .	..
15	10.3	26	7.8	0	-33	. .	...	. .
16	10.6	26	8.1	3	-28	.	...	.
17	9.8	27	7.5	-4	...	..	...	.
18	8.2	28	6.3	-25	.	..	..	..
19	7.8	28	6.1	-31	...	..	...	.
20	9.1	28	7.1	-10	...	.	...	.
21	12.9	21	10.0	16	-4	-23	...	..
22	18.8	16	14.5	23	17	9	-2	-17
23	21.7	14	16.7	21	20	15	6	-4
24	22.0	13	16.8	18	18	14	6	-3

VK SOUTH — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	17.7	10	13.5	...	11	9	3	-8
2	18.6	10	14.1	..	10	10	5	-4
3	19.1	10	14.4	.	10	11	6	-2
4	19.2	10	14.4	...	11	11	7	-2
5	19.1	11	14.4	...	12	12	7	-2
6	18.3	11	13.8	-35	13	12	5	-5
7	16.7	12	12.6	-20	15	9	0	-13
8	14.5	14	11.0	3	15	3	-10	-29
9	12.1	19	9.2	25	10	-11	-32	. .
10	10.2	21	7.7	31	-2	-33	...	...
11	8.8	23	6.6	31	-17	..	..	...
12	8.4	25	6.3	32	-24	...	.	...
13	8.3	26	6.2	33	-25	...	..	...
14	8.3	26	6.2	33	-26	...	. .	...
15	8.3	26	6.2	33	-26	...	. .	...
16	8.4	26	6.3	34	-24	...	...	...
17	8.6	26	6.5	35	-21	...	...	. .
18	8.5	26	6.4	34	-23	..	...	..
19	7.6	26	5.9	30	-38	...	...	...
20	7.4	26	5.7	28	...	...	.	..
21	9.0	26	7.0	36	-15	...	.	...
22	11.9	13	9.2	6	6	-12	-31	...
23	14.8	11	11.4	-16	11	3	-8	-26
24	16.7	10	12.8	-32	12	8	0	-13

VK WEST — ASIA

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	21.1	13	16.2	-30	18	18	13	4
2	21.7	13	16.6	-39	17	17	13	6
3	21.4	12	16.3	.	15	16	13	5
4	21.4	12	16.3	.	15	16	13	5
5	21.9	13	16.7	...	16	17	14	7
6	22.5	13	17.1	-39	17	19	15	8
7	22.4	14	17.1	30	20	20	16	8
8	21.2	15	16.1	-15	22	20	14	5
9	19.0	16	14.5	6	25	18	10	-2
10	16.3	19	12.3	31	26	13	0	-19
11	13.8	21	10.5	36	19	0	-18	
12	11.8	22	9.0	38	9	-17		
13	10.9	23	8.2	39	2	-28		
14	10.5	25	7.9	41	-1	-35		
15	10.1	25	7.7	40	4			
16	10.0	25	7.6	40	-6			
17	9.9	25	7.5	40	-6			.
18	10.2	25	7.8	41	-3	-38		..
19	9.7	25	7.4	39	-9			
20	8.3	26	6.4	34	-28			
21	8.0	26	6.2	32	33			
22	10.6	19	8.0	28	0	-30	.	
23	15.1	15	11.7	7	17	5	-8	-27
24	19.1	14	14.7	-15	20	16	9	-2

VK EAST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.9	-2	8.5	3	0	-8	-21	-38
2	11.9	-6	8.6	0	0	-7	-19	-34
3	12.9	-6	9.4	-2	0	-4	-14	-26
4	14.4	-4	10.1	-5	1	-1	-8	-18
5	15.9	-1	11.6	-7	1	1	-4	-13
6	16.8	0	12.3	-7	2	2	-2	-10
7	16.9	1	12.3	-6	3	2	-2	-10
8	16.9	3	12.4	-2	4	3	-2	-11
9	15.9	3	12.1	1	3	0	9	-21
10	13.4	2	10.2	3	0	-7	-20	-36
11	11.5	2	8.7	4	-4	-16	-34	...
12	10.6	4	8.0	3	-8	-23	...	...
13	10.2	8	7.7	3	-11	-29	...	...
14	9.9	12	7.5	3	-15	-35	...	...
15	9.7	16	7.3	3	-18	...	...	...
16	9.7	20	7.3	3	-20	...	...	...
17	10.0	25	7.6	6	-19	...	...	...
18	9.4	27	7.2	2	-26	...	...	...
19	8.1	29	6.3	-9	..	...	...	...
20	7.9	30	6.1	-12	...	...	...	..
21	10.3	28	8.0	9	-17	...	...	...
22	11.3	24	8.5	14	-4	-22	...	...
23	13.3	15	9.4	15	7	-3	-18	-36
24	12.4	5	8.8	7	2	-6	-21	-38

VK SOUTH — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.2	9	8.5	9	2	-8	-24	...
2	12.2	1	8.6	4	1	-7	-21	-37
3	13.3	-1	9.4	0	1	-3	-14	-27
4	15.1	-1	10.4	-3	2	0	-7	-17
5	16.8	1	12.0	-6	2	2	-2	-10
6	17.8	2	12.7	-7	2	3	0	-7
7	17.9	2	12.7	-7	3	3	0	-7
8	17.6	3	12.7	-4	3	2	-4	-13
9	15.2	1	11.5	0	2	-2	-11	-23
10	12.6	-1	9.5	1	-1	-9	-22	-39
11	10.6	-3	7.9	1	-7	-19	-38	...
12	9.2	-3	6.8	0	-14	-31	...	...
13	8.8	1	6.5	-1	-20	..	...	...
14	8.8	7	6.5	-1	-23	...	...	...
15	8.8	15	6.5	-2	-27	...	..	...
16	8.9	20	6.5	-2	-29	...	...	...
17	9.0	25	6.7	0	-30	...	...	...
18	9.2	27	6.9	1	-29	...	...	...
19	9.1	29	6.9	0	-31	..	...	...
20	8.5	30	6.5	-5	-39	...	...	...
21	8.4	30	6.5	-7	...	...	...	...
22	9.7	29	7.5	4	-24	...	...	...
23	10.1	28	7.7	9	-16	-39	...	...
24	12.9	20	9.0	18	7	-5	-23	...

VK WEST — EUROPE

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.7	19	8.8	16	4	-9	-28	.
2	12.6	8	8.8	8	1	-8	-25	..
3	13.8	4	9.6	4	2	-4	-16	31
4	15.7	3	10.7	0	4	0	-7	-18
5	17.7	4	12.4	-2	4	3	-2	-10
6	18.8	4	13.2	-4	4	4	0	-7
7	18.9	4	13.3	-5	3	4	0	-6
8	18.9	4	13.3	-5	4	4	0	-6
9	19.0	5	13.4	-3	4	4	0	-8
10	17.7	4	13.5	0	4	1	-6	-16
11	15.0	3	11.4	3	2	-4	-15	-30
12	12.7	3	9.6	4	-2	-13	-29	..
13	10.9	4	8.3	3	-9	-25	..	..
14	10.2	8	7.7	2	-15	-34	.	...
15	10.0	15	7.5	2	-19	.		...
16	9.8	19	7.4	2	-22	..	..	...
17	9.7	24	7.4	2	-25	.	.	.
18	9.8	26	7.4	3	-25	.	..	...
19	10.0	27	7.6	5	-22	.	..	...
20	9.6	28	7.4	2	-27	...	..	..
21	8.6	29	6.6	-7	.	..	...	...
22	8.3	29	6.4	-10		...	...	...
23	9.9	28	7.7	6	-21	.	...	...
24	10.2	27	7.8	7	-18	...	..	

VK EAST — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.8	18	10.0	0	19	12	4	-8
2	13.6	19	9.3	7	19	10	0	-14
3	12.7	21	8.7	14	18	7	-4	-21
4	12.2	25	8.4	27	20	6	-7	-27
5	12.2	25	8.5	26	20	6	-7	-26
6	12.4	23	9.2	26	18	4	-11	-31
7	12.2	21	9.2	21	16	2	-13	-34
8	10.5	15	7.8	8	7	-9	-26	..
9	8.8	5	6.7	-5	1	-15	-33	..
10	8.6	-2	6.4	-16	0	-14	-31	...
11	8.7	-9	6.4	-26	0	-11	-26	...
12	8.7	-14	6.4	-34	0	-9	-22	..
13	8.8	-17	6.6	...	0	-7	-18	-36
14	8.9	-22	6.6	...	-2	-8	-18	-35
15	9.0	-27	6.7	..	-5	-10	-20	-36
16	9.0	-35	6.7	...	-9	-14	-24	...
17	8.4	...	6.4	..	-15	-21	-33	...
18	8.2	...	6.3	...	-14	-21	-34	...
19	9.4	-18	6.9	..	-1	-5	-14	-29
20	12.1	-5	9.3	..	0	-2	-8	-20
21	14.9	4	11.4	..	3	3	-2	-12
22	17.3	10	12.2	..	10	9	4	-5
23	16.8	15	11.5	-22	16	14	9	0
24	15.8	17	10.7	-9	18	14	7	-4

VK SOUTH — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	14.0	16	9.7	-7	16	9	1	-12
2	13.0	19	9.1	7	17	8	-3	-19
3	12.3	22	8.6	17	18	5	-7	-26
4	11.9	25	8.4	27	19	4	-10	-31
5	12.0	26	8.5	30	20	5	-9	-30
6	13.0	24	9.2	26	20	7	-6	-25
7	11.5	21	9.4	23	12	-5	-23	...
8	9.6	14	7.5	9	3	-17	-38	...
9	8.4	6	6.5	0	-3	-24	...	...
10	8.1	-1	6.2	-8	-3	-22	...	...
11	8.1	-7	6.2	-16	-2	-18	-36	..
12	8.2	-12	6.3	-24	-1	-14	-30	...
13	8.3	-16	6.5	-32	-1	-11	-25	...
14	8.4	-30	6.4	...	-8	-17	-31	...
15	8.5	...	6.6	...	-14	-22	-35	...
16	8.4	...	6.5	..	-21	-28	...	...
17	7.9	...	6.2	..	-30	-39	..	..
18	7.9	...	6.2	...	-32	...	...	...
19	8.8	...	6.7	...	-20	-25	-37	...
20	10.8	-13	8.6	...	-2	-3	-10	-23
21	13.2	-5	10.6	..	-2	-1	-6	-16
22	15.4	1	11.7	...	0	2	-2	-10
23	15.8	7	11.1	...	5	6	2	-6
24	14.9	12	10.3	-29	12	9	3	-7

VK WEST — EUROPE (Long Path)

UTC	MUF	dBU	FOT	7.1	14.2	18.1	21.2	24.9
1	13.6	7	9.5	-33	7	4	-3	-15
2	12.7	10	8.9	-15	10	3	-6	-21
3	12.0	12	8.5	-6	10	1	-10	-27
4	11.6	15	8.3	3	11	0	-12	-31
5	11.8	16	8.5	5	12	1	-11	-29
6	12.7	17	9.1	7	15	4	-6	-23
7	13.8	17	10.0	4	16	8	-1	-15
8	13.9	13	10.8	1	12	3	-8	-25
9	11.4	10	9.3	-4	6	-7	-21	.
10	9.5	1	7.4	-13	0	-15	-31	...
11	8.3	-8	6.4	-19	-4	-19	-36	...
12	8.0	-15	6.1	-25	-4	-17	-32	...
13	8.0	-20	6.1	-33	-4	-15	-29	...
14	8.1	-35	6.1	...	-11	-21	-34	..
15	8.2	.	6.4	...	-17	25	-39	..
16	8.3	.	6.3	...	-22	-29	.	..
17	8.4	.	6.4	..	-26	-32		.
18	8.3	.	6.4	...	-30	-35	..	..
19	7.8	.	6.1	..	34	..	.	..
20	7.8	..	6.1	.	-32	..	..	.
21	8.7	.	6.5		-18	-23	-35	.
22	10.7	-14	8.6	.	-3	-6	-13	-27
23	13.1	-4	10.5	..	-2	-3	-9	-20
24	14.4	2	10.1	.	2	1	-4	-14

VK EAST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.2	7	10.0	8	3	-5	-19	-36
2	13.6	2	10.2	3	2	-4	-15	-30
3	16.4	3	12.2	0	4	2	-5	-15
4	19.7	6	14.9	-4	5	5	2	-4
5	21.2	6	16.3	-6	5	6	4	-2
6	21.4	6	16.7	-6	4	6	3	-2
7	20.7	5	15.7	-4	4	5	1	-6
8	18.4	4	14.0	-1	4	3	-3	-13
9	15.6	3	11.8	2	3	-2	-11	-24
10	13.2	2	10.0	3	0	-9	-23	...
11	11.3	3	8.6	3	-5	-18	-37	...
12	10.5	6	7.9	4	-10	-25	...	...
13	10.3	11	7.7	4	-12	-31	...	...
14	10.1	17	7.5	5	-15	-36	...	...
15	10.0	25	7.6	6	-18	...	...	..
16	10.0	27	7.5	7	-18	...	...	...
17	10.3	28	7.8	9	-16	...	...	...
18	9.8	29	7.5	6	-21	...	...	...
19	8.7	30	6.7	-2	-35	...	...	...
20	8.4	30	6.5	-5	-39	.	...	...
21	10.6	29	7.9	11	-13	-36	...	...
22	10.2	28	7.8	9	-14	-38	...	...
23	10.0	19	7.7	6	-14	-34	...	...
24	14.1	14	10.7	14	6	-4	-20	-38

VK SOUTH — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	13.0	14	9.9	13	4	-7	-24	...
2	13.3	7	10.1	7	2	-6	-20	-37
3	16.3	6	12.8	3	5	2	-6	-18
4	19.7	7	15.0	0	7	6	2	-5
5	21.3	6	16.0	-3	5	6	2	-4
6	21.2	5	15.9	-4	5	5	2	-4
7	20.2	5	15.1	-3	4	4	0	-7
8	18.1	4	13.6	-1	4	2	-4	-14
9	15.6	3	11.7	1	2	-2	-12	-25
10	12.9	1	9.7	2	-2	-10	-25	...
11	10.8	0	8.1	1	-8	-22	.	..
12	9.4	1	7.0	-1	-17	-36	...	...
13	8.9	7	6.7	-2	-24	...	..	...
14	9.0	14	6.6	-2	-27	. .	..	...
15	9.0	23	6.7	-1	-31	. .	..	. .
16	9.1	26	6.7	-1	-31	. .	..	...
17	9.2	28	6.9	0	-30	...	..	.
18	9.4	29	7.1	1	-28	...	.	. .
19	9.3	29	7.1	1	-29	...	...	..
20	8.7	29	6.7	-4	-37	. .	..	...
21	8.6	29	6.6	-5	..	...	...	...
22	9.0	29	7.0	-1	-32	. .	...	...
23	8.7	29	6.8	-4	-37	. .	..	...
24	12.4	21	9.4	15	-1	-18	...	...

VK WEST — MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	12.1	20	9.2	14	-1	-17	.	..
2	12.4	11	9.4	9	-1	-13	-32	. .
3	15.0	7	11.8	7	5	-2	-14	-29
4	18.1	7	13.8	4	7	4	-3	-13
5	19.5	6	15.1	7	7	5	1	-10
6	19.6	6	15.2	0	6	4	-1	-9
7	20.0	5	15.2	0	5	4	1	-9
8	19.5	5	14.8	0	5	3	-2	-11
9	18.0	4	13.6	1	4	1	-6	-17
10	15.8	4	12.0	3	3	-3	-14	-29
11	13.3	4	10.0	4	-2	-12	-29	. .
12	11.2	5	8.5	3	-10	-25	.	
13	9.7	7	7.3	-1	-21	...	.	..
14	9.1	13	6.9	-4	-29			. .
15	9.0	21	6.8	-4	-34	.		.
16	9.0	24	6.7	-5	-37	.	. .	. .
17	8.9	26	6.8	-5	-39	. .	.	.
18	9.0	28	6.8	-4	-38	.	.	.
19	9.2	28	7.0	-3	-35	.		.
20	9.0	28	6.8	-5	-39		..	.
21	8.1	29	6.2	-14	.		...	.
22	7.9	29	6.1	-17	.	..	.	.
23	9.3	29	7.1	0	-32	..	...	. .
24	9.1	29	7.0	-1	-34	..	. .	.

VK EAST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	22.7	7	17.1	1	8	8	5	-1
2	22.7	9	17.2	7	12	11	6	-1
3	21.6	14	17.3	16	17	15	8	0
4	19.9	19	15.9	24	21	16	8	-2
5	18.7	22	14.9	30	24	16	5	-6
6	17.8	24	14.0	32	23	14	1	-13
7	16.2	23	12.3	29	16	4	-13	-31
8	13.7	25	10.4	23	6	-9	-31	...
9	11.7	27	8.8	16	-5	-26	...	...
10	10.8	28	8.1	11	-12	-36	...	...
11	10.4	29	7.8	9	-16	...	...	.
12	10.1	29	7.5	7	-19	...	...	..
13	9.9	27	7.4	6	-20	...	..	...
14	9.9	19	7.4	4	-19	...	...	. .
15	10.2	13	7.7	4	-15	-35	..	. .
16	9.6	5	7.3	0	-16	-35	..	. .
17	8.3	-6	6.4	-4	-22	...	..	..
18	8.0	-14	6.2	-4	-19	-38		.
19	10.5	-7	8.1	-1	-8	-20	-38	.
20	15.0	0	11.6	0	0	-4	-14	-28
21	19.0	3	14.6	-3	3	2	-3	-12
22	21.1	5	16.2	-5	4	5	1	-6
23	21.9	5	16.7	-4	5	5	2	-4
24	22.4	6	17.0	-3	6	7	3	-3

VK SOUTH — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	21.8	8	16.9	3	9	9	4	-2
2	22.0	11	16.4	10	14	12	6	-1
3	21.8	14	16.3	19	19	15	8	-1
4	20.8	17	15.5	27	22	16	7	-4
5	18.7	20	14.0	30	22	13	0	-13
6	16.1	23	12.1	28	16	4	-12	-30
7	13.3	25	9.9	22	5	-11	-34	...
8	11.1	28	8.3	14	-9	-31	...	...
9	9.6	29	7.2	5	-23	...	...	...
10	9.2	30	6.8	1	-28	...	...	...
11	9.2	30	6.8	1	-28	...	...	...
12	9.3	29	6.8	2	-28	...	...	...
13	9.3	28	6.9	2	-27	...	...	...
14	9.4	20	7.0	2	-22	...	...	...
15	9.6	13	7.2	2	-18	-39	...	...
16	9.5	5	7.2	1	-16	-35	...	...
17	8.9	-3	6.7	-1	-17	-36	...	...
18	8.7	-10	6.7	-2	-15	32	.	.
19	10.1	-8	7.4	0	-9	-21	...	.
20	13.1	-1	10.1	0	-1	-8	-21	-37
21	16.2	2	12.4	-1	2	-1	-9	-20
22	18.6	4	14.1	-3	4	2	-3	-11
23	19.9	5	15.1	-3	5	4	0	-7
24	21.2	7	15.9	-1	6	6	2	-4

VK WEST — USA/CARIBBEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	19.6	6	14.9	-4	5	5	1	-5
2	20.8	8	15.7	0	8	8	4	-2
3	21.4	11	16.6	7	12	11	6	-1
4	19.8	16	15.8	14	17	14	8	0
5	18.6	19	14.8	21	20	15	6	-4
6	17.6	23	13.9	27	22	15	4	-8
7	16.6	26	13.5	31	23	13	1	-13
8	15.5	26	12.0	30	18	6	-10	-28
9	13.1	28	9.8	24	7	-9	-31	. .
10	11.0	30	8.3	16	-6	-27	.	. .
11	9.5	32	7.1	7	-20		.	
12	9.1	32	6.8	4	-25	.	.	.
13	9.1	31	6.8	4	-24		.	..
14	9.2	22	6.8	4	-20	.	.	.
15	9.2	16	6.9	3	-18			.
16	9.4	8	7.0	3	-13	-32		.
17	9.6	2	7.2	3	-10	-26	.	.
18	9.5	-4	7.2	2	-8	-22	.	.
19	8.9	-11	6.8	1	-9	-23	.	.
20	8.7	-17	6.7	1	-7	-20	.	.
21	10.1	-13	7.4	0	-3	-13	-29	.
22	13.2	-4	10.2	-1	0	-4	-14	-28
23	16.2	1	12.4	-4	2	0	-6	-15
24	18.5	4	14.1	-5	3	3	-1	-8

HAMADS

TRADE ADS

● AMIDON FERROMAGNETIC CORES: For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne: Alpha Tango Products, Perth.

● WEATHER FAX programs for IBM XT/ATs *** "RADFAX2" $35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3-00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● HOME BREW your own shack (Steel Garage). Complete Engineering design (suitable for councils Aust wide). Workshop drawings standard slab. Detailed erection instructions. Parts list, fully bolt up or fully welded (state which). Send $95.00 to Ken Byrne Sheds, PO Box 120, Yandina Qld 4561. Phone or Fax (074) 46 8423 or (018) 71 3434. VK4NUH.

FOR SALE ACT

● YAESU FT7 transceiver good cond, mic and manual $275; JUMBO 400 W PEP solid state HF linear, good cond, no manual $300; 3 QUAD ant hubs $60. Eric VK1EP (06) 249 6437 LAO.

FOR SALE NSW

● B & W DUMMY load wattmeter oil cooled ranges 0-10, 100, 300, 1000 W 52 ohms good condn $150. Gordon VK2AVT QTHR (02) 580 4325.

● DECEASED ESTATE HARRY HARMAN VK2GH. Complete Ham Shack disposal at his QTHR address in call book. Garage type sale NO PERSONAL CHEQUES Saturday 18th June. Includes HF/2 m xceivers complete with mics, operate and service manuals, cartons. KENWOOD TS440 s/n 70903357 $1550, TS140S near new s/n 0101746 $1100, TR2400HT with new batteries, charger s/n 0115014 $120. Near new Auto ATU AT250 s/n 20800080 c/w manual carton $550. Near new ICOM IC28H mobile s/n 26843 c/w manual accessories $600. University Sig Gen H & P Sig Generator, GDO, AVO meter, test equipment etc. VK power master and various P/S. Radio books, antennas etc. ALL ONO/LAO. Contact Les (049) 33 4128 AH or Ted VK2UI on packet at BBS of VK2KLW or VK2CZZ.

● KENWOOD TS830S HF transceiver s/n 1070225 ext VFO s/n 1040087 service manual, MC50 desk mike, spare valves 1/12BY7A, 2/6146B $1000 ONO. Franklyn VK2DYP QTHR (02) 452 5172 Licensed Amateurs only.

● TS830 little used MC50 desk mike external speaker original packing, spare tubes 500 Hz filter $800 ONO. David VK2BBT (043) 67 6688 after 6 pm.

KENWOOD TS850S with MC80 mike SP31 external speaker computer interface SSB CW narrow filters six months old $3150. Merv VK2SML (047) 36 3738.

● SONY ICF-2001 general coverage receiver $200; TELEREADER CWR-685A $400; KENWOOD Multi-PS20 directional coupler $30; MARCONI TF-329G Q meter $170; LDF5-50A Hardline ca 18 m $150. Tom VK2OE (046) 21 2228 evenings.

FOR SALE VIC

● SATELLITE Receiver K or C band supplied with K band low noise converter and magnetic polariser feedhorn will separate $290. Neil VK3BCU (03) 390 2609.

● ICOM IC751A HF xcvr with IC-EX310 voice unit, RC-10 frequency controller UT-30 tone encoder extra CW filter plus SM8 desk mic, SP3 external speaker $1600. Ray VK3CDR QTHR (03) 726 9222.

● STANDARD 528 144/430 hand held wide band RX spkr/mic, 2 antennas, 2 nicad batteries, charger, workshop & instr manual $675. John VK3ZAB QTHR (03) 802 4212.

● YAESU FT707 HF xcvr FP707 power supply Yaesu FC707 antenna tuner all in good working order $1050 the lot. Please ring after 0900 Zulu Saturday and all day Sunday Keith (090) 71 2708 or Patrick (051) 99 2811.

● ICOM IC-751A s/n 05859 including internal P/S $1400; EMTRON TE-31 14-28 MHz rotatable dipole $50; HI-MOUND marble base key $40; MFJ-249 SWR meter new $350; SONY ICF-PRO70 0.2-108 MHz radio $190. Susumu VK3ERR QTHR (03) 598 0282 after 7 pm.

FOR SALE QLD

● COLLINS TCS-12 (JAN) separate TX & RX $300; MILITARY whip antenna and multiband tuner $50; DRAKE C-line valves (2) 6JB6A $65; MULTITESTER Sanwa N-501 top of the range 17 μA FSD, 10 A ac/dc etc $80; FUNCTION Generator home brewed GWO $40; WHIP antennas 80 m w/adjustable tip $40, 10 m $30. John VK4SZ QTHR (070) 61 3286.

● VHF 3 band converter YAESU FRV7700 serial no. 11011641 vgc $75. Gil VK4CF QTHR (07) 355 3969.

● ICOM XCVR IC-720, c/w ICOM power supply IC-PS15, OSKER SWR meter SWR-200, KENWOOD ant tuner AT-130 $800 the lot, will not be separated. Les VK4CAF (070) 53 6492.

FOR SALE SA

● FT1000 limited use with original packing, manual and MD1 desk mike s/n 0J0900248 $4700 ONO. Paul VK5TT (08) 645 3971 BH.

FOR SALE WA

● KENWOOD TS680S HF & 6 m $1025; 2 m HAND HELD TH25A many extras $275: BWD Osc 804 10 megs $150. All above units with hand books. Allan VK6LL QTHR (09) 446 1568.

● YAESU FT75B mobile 12-15 V 100 W PEP 5 band transceiver 10-80 m vgc with speaker power unit and mike also manual crystal control suit station rugged mount $200. Tom VK6TL QTHR (09) 386 7692.

WANTED NSW

● COPY of circuit for Kingsley radio type AR7, will return cost of photocopy and postage etc. John VK2CAF, RMB 419 Nowra Rd, Moss Vale NSW 2577.

● OLD AND NEW Morse keys magazines, books relating to Morse code. Need as much material as possible for future book. Top prices paid. Steve VK2SPS (02) 99 2933 after 6 pm.

● WILL SWAP AWA A-220 sig gen (solid state) both manuals for any HAM item, test gear or anything. Old and/or not working OK. 7 PIN valve sockets also wanted. Vic VK2EVD (02) 772 2411.

● COLLINS equipment 62S-1 converter, SM1 or SM2 microphone, 312B-5 control console, 52-S1 receiver, old valve type equipment — Hammarlund, Hallicrafters, good quality valve tester, large collection of CQ, HR. Tom VK2OE (046) 21 2228 evenings.

● MANUAL for general radio RF bridge model 1606B; WANTED for Tektronix CRO model 545A, a dual channel plug-in unit model CA or similar. Peter VK2CPK QTHR (02) 605 4790.

WANTED VIC

- YAESU FRG-8800 or KENWOOD R-1000 in top working condition. Roth VK3BG (03) 725 3550.
- MARCONI T1154 transmitter usable or capable of being restored for Scienceworks and proposed new Air and Space Museum at Point Cook. Please contact Allan Doble VK3AMD QTHR (03) 570 4610 or Arthur Evans VK3VQ QTHR (03) 589 3822.
- RADIO THEORY Handbooks by Fred Swainston second edition in good condition for SPARC students. Price etc to Max VK3YBE QTHR (059) 85 2671.
- CONTROLLER AWA p/n 1P2512 and power unit p/n H3080 for Aircraft transmitter type AS9 for Museum. Rod VK3TJ, 4 Thistle St, Pascoevale South Vic 3044, (03) 354 2401.

WANTED QLD

- FIF-232C Cat interface C/W and RS232 cable in vgc. Trevor VK4ARB QTHR (07) 269 8848.
- FLDX2000, Galaxy txcvrs, Heathkit HW16, SB200, SB201, SB220, SB104A, SB401, HW101, 8 F'glass Quad spreaders approx 4 m long, 6146B for homebrew TX, medium duty rotator, Argonaut 509 QRP txcvr. Granite Belt Amateur Wireless Group (076) 85 2167 AH.

MISCELLANEOUS

- THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX pictorial special issue. Please contact Hon Curator Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, Tel (03) 728 5350.

ar

Update

VK4 Membership Fees

Please note that the gremlins struck with the listing of the VK4 Division 1994 membership fees on page 3 of the March and April issues of *Amateur Radio* magazine (the listings were correct in the December, January and February issues and are again correct in this issue).

Master Henry Witherspoon Cartoon

The clever cartoon which appeared on page 50 of the May 1994 issue of *Amateur Radio* magazine was supplied by Richard Murnane VK2SKY. Apologies to Richard for the mysteriously missing byline. We hope more cartoons are forthcoming, Richard.

What's New? — New Range of Mobile Antennas

The new *What's New?* column, appearing for the first time in last month's issue on page 48, had some teething troubles. Adrian Fell's callsign is, of course, VK2DZF, as could be seen in Adrian's cartoon appearing on page 51 of the same issue.

More importantly, however, Adrian's post office box was wrong. Global Aerials correct address is PO Box **344,** Baulkham Hills, NSW 2153.

It might be a good idea if you correct last month's issue now.

ar

Sign up a new member today — we need the numbers to protect our frequencies and privileges.

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.
*Eight lines per issue free to all WIA members, ninth line for name and address Commercial rates apply for non—members. Please enclose a mailing label from this magazine with your Hamad.
*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
*Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadline as indicated on page 1 of each issue.
*QTHR means address is correct as set out in the WIA current Call Book.

*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.
*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.
Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re—sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge — $25.00 pre—payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name:..... Call Sign: ..... Address: .....

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with **strictly.**

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All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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Telephone: 428 2958
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R L Polk & Co Pty Ltd, 96 Herbert St, Northcote, Vic. 3070. Tel: (03) 482 2255

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. "How to Write for Amateur Radio" was published in the August 1992 issue of AR. A photocopy is available on receipt of a stamped, self addressed envelope.

BACK ISSUES

Available only until stocks are exhausted. $4.00 to members, which includes postage within Australia.

PHOTOSTAT COPIES

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary
Wireless Institute of Australia
PO Box 300
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

Mr, Mrs, Miss, Ms:.....

.....

Call Sign (if applicable):.....

Address:.....

.....

.....

State and Postcode:.....

WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WSS Tuesday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 2030 local on 3550 kHz

VK5RCW Continuous on 144.975 MHz, 5 wpm to 12 wpm

VK6WIA Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz.

WIA Divisional Bookshops

The following items are available from your Division's Bookshop (see the WIA Division Directory on page 3 for the address of your Division)

	Ref	List Price
ANTENNAS		
Ant. Compendium Vol 2 Software 5.25" IBM Disk	BR293	$22.00
Ant. Compendium Vol 3 1st Ed. 1992	BR455	$37.00
Antenna Compendium Vol 2 — ARRL	BR292	$32.00
Antenna Impedance Matching — ARRL	BR257	$52.00
Antenna Note Book W1FB — ARRL	BR179	$26.00
Antenna Pattern Worksheets Pkt of 10	BR902	$3.00
Cubical Quad Antennas- Haviland — 1993	BR041	$37.50
Easy Up Antennas	MFJ38	$39.25
G-QRP Antenna Handbook — RSGB — 1992 1st Edition	BR452	$22.50
HF Antenna Collection — RSGB	BR391	$44.00
HF Antennas for all Locations — Moxon — 2nd Edition	BR188	$45.00
HF Antennas for all Locations — RSGB — 1993	BR088	$45.00
mntenna Compendium Vol 1 — ARRL	BR163	$26.00
Novice Antenna Notebook — DeMaw W1FB — ARRL	BR162	$20.00
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Reflections Transmission Lines and Antennas — ARRL	BR348	$52.00
The Antenna Handbook — ARRL 1991 edition	BR370	$52.00
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DX Brings Danger — ARRL	BR206	$13.50
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Electronics Data Book — ARRL	BR201	$32.00
Radio Communication Handbook — RSGB	BR266	$56.00
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Space Radio Handbook — GM4IHJ — RSGB	BR439	$47.00
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Ferrells Confidential Frequency Listing	BR387	$40.00
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QRP Operating Manual — ARRL — 1992	BRR010	$16.00
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Morse Tutor 3.5" IBM Disk	BR187A	$20.00
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Operating Manual — RSGB	BR359	$31.00
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